

COAL AGE

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Number 11

Labor Seeks a Six-Months' Armistice

A committee appointed by the New York State Federation of Labor to investigate the high cost of living reports in part as follows:

YOUR committee does not intend to burden you with a tiresome dissertation on the causes of the high cost of living. They are patent to all thoughtful men. The representative business men with whom your committee conferred presented facts and figures to show that the high cost of living is due to the high cost of and decrease in production. These facts were well known to your committee.

Your committee is convinced that this condition is all wrong and cannot be permitted to continue unless we—and by “we” your committee means not labor alone but the people of the whole United States—wish to invite a disaster unparalleled in history. The people must be given a breathing spell.

There must be a suspension of struggling for class and party advantage. All Americans must bend their backs to their oars and pull steadily together against the storm-tossed waters until our boat again rides safely on the placid sea of prosperity.

The part that labor can play in bringing tranquility and prosperity to our industrial life has been pointed out by recent events.

The President of the United States in a message to his fellow-citizens on August 25, refers specifically to the threatened strike of railway shopmen and makes a plea which may advisedly be considered as applying to industrial disturbances generally. The President said:

“Only by keeping the cost of production on its present level, by increasing production and by rigid economy and saving on the part of the people can we hope for large decreases in the burdensome cost of living which now weighs us down.”

As a result of President Wilson’s appeal, backed by the attitude of Samuel Gompers, president of the American Federation of Labor, and the leaders of the railway brotherhoods, the threatened railroad strike was averted and the country spared a terrible tragedy.

On every hand there are strikes and threats of strikes. Most of these disturbances have been provoked by radical agitators who have not the interests of the toilers at heart, but who seek to promote industrial warfare for the purpose of destroying our present economic system and substituting “industrial ownership by the proletariat.”

Fortunately, the same leaders of organized labor have, after a short period, succeeded in regaining control of their temporarily rebellious unions and restoring

orderly procedure under the laws and rules of the American Federation of Labor.

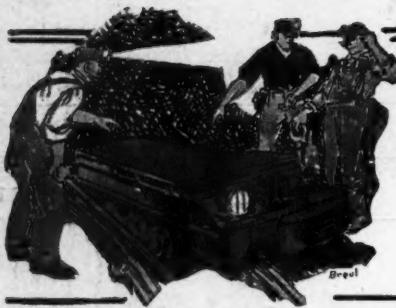
The conduct of men who call themselves loyal supporters of trade unionism in breaking away from the authority of their duly elected officials and inaugurating uncalled for, unnecessary and unauthorized strikes should at all times be severely condemned and the agitators who foment such outbreaks should be visited with the severest penalties possible under trade union rules.

For trade unions to permit themselves to be brought under the influence of lawless agitators at this time of national stress is treason not only to the principles of trade unionism but to the United States of America. It would not be too severe punishment to revoke the American Federation of Labor charters of such unions and put them outside the pale of decent organized labor.

* * *

Your committee earnestly recommends:

1. That the Executive Council take steps to cancel and suspend all strikes now in progress in New York State and to use their influence to prevent the calling of future strikes except in such circumstances as, in the opinion of the Executive Council, render it imperatively necessary to use the strike weapon.
2. That the truce shall be on the basis of the status quo.
3. That the period of the truce shall be six months, or for such longer period as President Wilson may require to enable him to effect a reduction of the cost of living.
4. That notice be served on all employers that any individual, firm or corporation which attempts to take advantage of organized labor’s attitude to serve its own interests at the expense of labor shall be left for a reasonable time to such disciplinary measures as other employers or organizations of employers may wish to put into effect, and that if disciplinary measures be not taken by the employers themselves, then organized labor will fight such unfair and disloyal individual, firm or corporation in a manner that will never be effaced from the culprit’s memory.
5. That copies of this report be transmitted to Samuel Gompers, president of the American Federation of Labor, and to the various State Federations of Labor throughout the United States, with the recommendation that the policy outlined herein be adopted by all.



IDEAS AND SUGGESTIONS

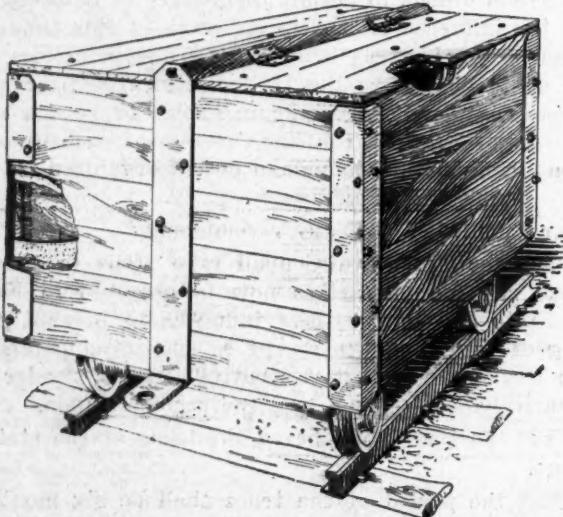
PRACTICAL SCHEMES THAT MAKE THE DAY'S WORK EASIER

A Safety Powder Car

BY GEORGE DEUVELL
Chicago, Ill.

The Madison Coal Corporation, at its No. 6 mine at Divernon, Ill., J. H. Miller, mine manager, has designed and built a special car for the transportation and distribution of powder within the mine in order to decrease the danger always connected with this operation. This car is built of wood, strapped and reinforced with iron. The planking is double, with two sheets of asbestos between boards. The bolts employed pass through the outer layer of planking only, and the inner planks are dovetailed together at the corners. There is thus no exposed metal inside the lining.

After the car was completed a test was made upon it. Five full cans of powder were placed in the car



SPECIALLY BUILT CAR FOR CARRYING POWDER

together with as many empties as would normally be carried in a full load. A can of loose powder was then scattered throughout the car and its contents. The car was then hauled away to a safe distance and deliberately short-circuited between trolley and rail, full voltage (275) being applied. Repeated tests failed utterly to produce an explosion.

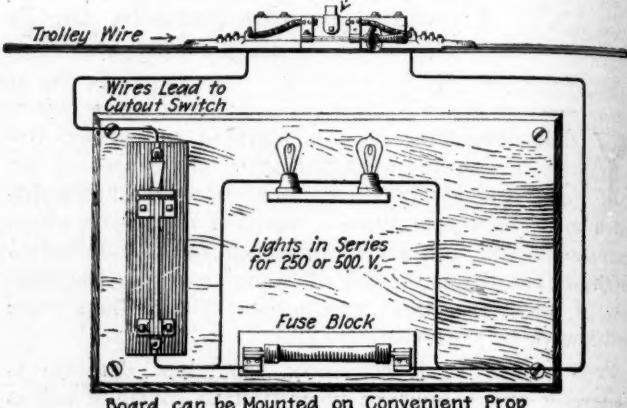
A Simple Ground or Short-Circuit Indicator

BY F. W. SAKON
Johnstown, Penn.

In mines where a trolley wire system is used there is frequently considerable time lost in finding a "short circuit" or a heavy ground which ties up the mine if not located immediately. A simple device that can be constructed by the electrician in charge will eliminate this annoyance.

Take a board 10 x 12 x 1 in. in dimension and mount a fuse block upon it. This fuse block may be

Sectional Insulator or Cutout
Switch to be Open at Time of Test



BOARD CAN BE MOUNTED ON CONVENIENT PROP
DIAGRAM OF DEVICE THAT SIMPLIFIES DISCOVERY OF
SHORT-CIRCUITS

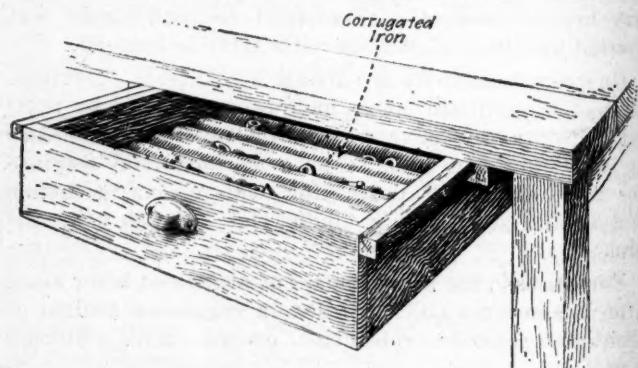
inclosed if necessary. The fuse must of course be posed on the wire. Also mount two light globes and sockets above the fuse block and wire, as shown in the illustration.

One of these boards should be at the cutout switch on each side of the entry. They are inexpensive, and in case the wire falls down onto the rails or there is any other accidental contact of the wire and rail, or a temporary short-circuit, the fuse will blow, after which the lights will light up, thus showing in which entry the trouble is located. The lamps are connected in series; that is, they can be connected for whatever globes there are on hand, and are so arranged as to light and burn properly whatever voltage is in use at the mine. A cutout switch can be mounted on the board for safety purposes.

Handy Smallware Drawer

BY C. H. WILLEY
Concord, N. H.

The simple expedient shown in the accompanying illustration seems worthy of being passed along to others. There is always a generous supply of small sections of



HANDY DRAWER WITH SHEET IRON BOTTOM

corrugated sheet-iron roofing about the mine buildings, and this is all that is needed to make these handy small-ware trays for the bench or for the cabinet drawers. Small screws, bolts, washers, rivets, nuts, cotter pins, etc., are easily picked from the grooves which form the trays, as they are round bottomed and easy on the finger tips.

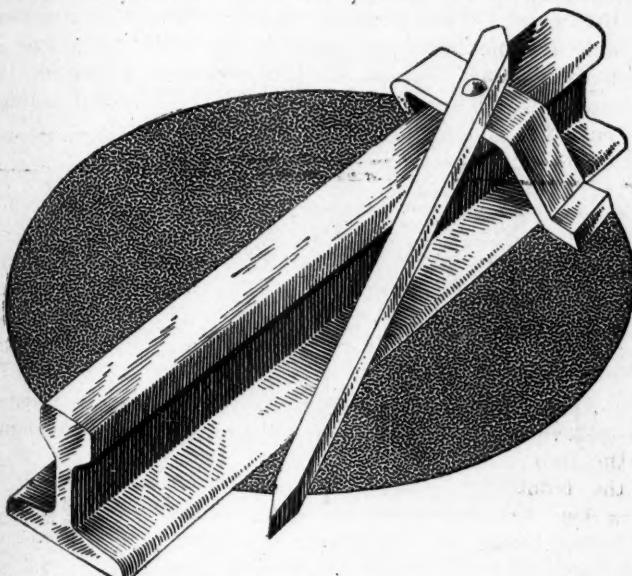
A Simple "Climber"

BY JOHN BUGGY

Chambersville, Penn.

The accompanying illustration shows what I call a "climber," since it is used to make derailed cars climb back onto the track. It is in reality a homemade car replacer of light weight and simple construction. Where either locomotive or rope haulage is employed, this little device will save its cost many times over in a short time through the rapid replacement of cars.

This climber is made from a piece of $1\frac{1}{2}$ -in. bar iron and a $\frac{1}{2} \times 2$ -in. strap to a U shape and just the height of the rail in the clear. The bar is attached to the strap at the bottom of the U by means of a rivet, prefera-



HOMEMADE DEVICE FOR REPLACING CARS ON TRACK

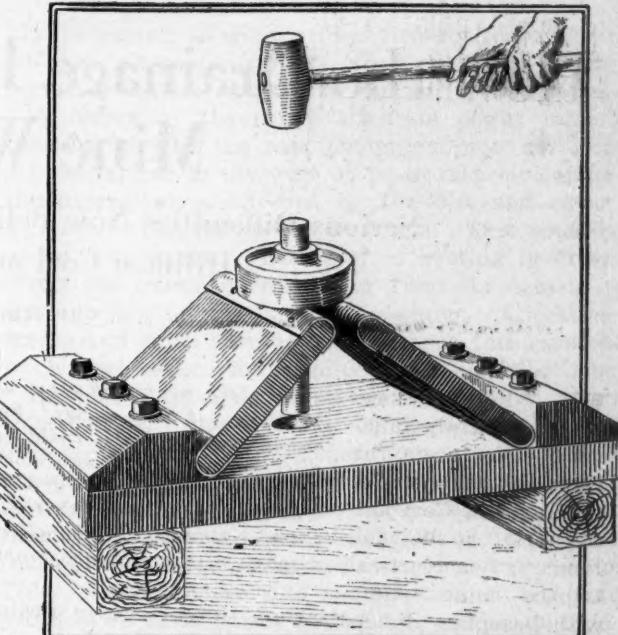
bly with both heads flush. This rivet should be loose enough to permit a considerable rotational movement between the two pieces that it joins.

In use, the U-shaped strap is placed with its two legs straddling the rail, while the end of the bar, which may be chamfered, rests on the ground or upon a tie just in front of a wheel of the derailed car. A second climber is similarly placed upon the other rail, and a pull or push on the car causes the wheels to mount the climbers and drop into place upon the track. A second setting of the climbers may or may not be necessary for the other pair of wheels.

Ingenious Arbor or Shaft Press

The accompanying illustration shows a simple affair constructed from pieces of plank, a few pieces of $\frac{1}{4}$ -in. plate iron and some bolts, nuts and washers, forming an arbor press that can be used for driving in or out shafts of pulleys, gears, wheels, flanges, etc.

The base is of 3-in. plank and the two buttresses of 4×6 -in. stuff. The two supports are of 2-in. plank, each end being capped with $\frac{1}{4}$ -in. sheet iron. These iron



SIMPLE METHOD OF DRIVING SHAFTS

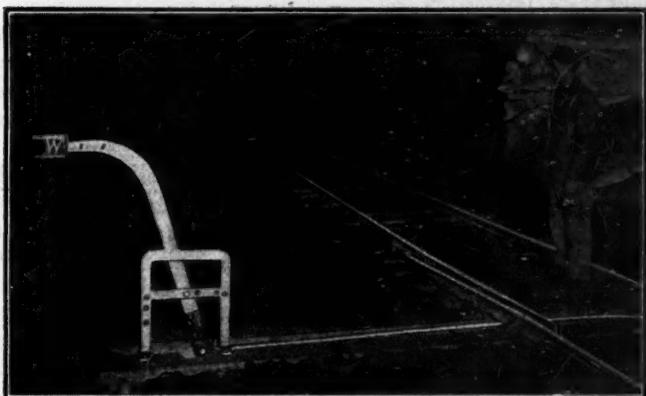
caps protect the ends of the plank. The buttresses are bolted to the base with three or more 1-in. bolts. In use, one end of each support rests against the buttresses and the other end supports the work. Any reasonable size of shaft rod or stock can be handled in this device, as the two plank supports adapt themselves to any size. A copper or brass maul is used as indicated, to drive the shaft into place or out of the flange or wheel.

A Safety Derail

BY MARSHAL JOHNSON

Benham, Ky.

At the mines of the Wisconsin Steel Co., at Benham, Ky., loads are drawn up a 3 per cent. grade for about three-quarters of a mile. For a long time considerable trouble was experienced with the breaking loose of cars, which would run wild down the slope. In order to overcome this difficulty the derail shown in the ac-



SIMPLE DEVICE THAT PREVENTS CARS FROM RUNNING LOOSE

companying illustration was devised. This apparatus is so simple, and is so clearly shown in the photograph, that little if any explanation is needed. The weight on the end of the lever holds the derail switch open. When a trip must pass it is only necessary to raise this weight and hold it until the trip has gone by.

How the Drainage Problem of Edna No. 2 Mine Was Solved

Serious Difficulties Now Believed to Be Settled For All Time at Hillman Coal and Coke Co. Operation

BY DONALD J. BAKER
Pittsburgh, Penn.

WITH the recent installation at the Edna No. 2 mine of the Hillman Coal and Coke Co., at Wendel, Penn., of a vertical triplex mine pump

with baseplate dimensions of 10 x 16 ft., a drainage problem of long standing at that place has been solved. The tract of coal owned by the company lies in Westmoreland County and is under the superintendency of E. H. Miller. The coal is that of the Pittsburgh bed and averages 6 ft. in thickness. It has been under development for the past 19 years by two mines—namely, Edna Nos. 1 and 2—which lie on the eastern and western sides of the property within an approximate distance of 3 miles of each other. The No. 2 mine employs 380 men and has a daily output of 1200 to 1500 tons, while the No. 1 mine averages 1000 tons daily with a force of 310 men.

A 360-ft. shaft gives access to the No. 2 mine, while No. 1 is entered by a slope. The coal takes a 7 per cent. dip from Edna No. 1 in a general southwesterly direction toward the No. 2 mine. This has caused a peculiar drainage problem to appear recently, the full force of which has been felt in particular at Edna No. 2. It might be mentioned that the coal has long since been removed between the two openings as far as the property boundary line on the north and south. The present workings as a result lie away from each other and in a more nearly east and west direction.

It can be seen that because of the formations encountered, the water from No. 1 mine will run by gravity in the direction of No. 2 mine. As the two operations developed they approached each other's workings until a junction, as stated above, was completed. Up to this time the water in mine No. 1 had been handled by small portable pumps throughout the mine. It was decided, however, to build a sump at a point about halfway between the two openings. This would serve to collect all of the water from the abandoned region on the north. The remainder coming from the abandoned workings to the south of the sump, being of no appreciable volume, would be allowed to run on into No. 2.

This project was carried out and two Gainsville steam pumps of 500 gal. capacity each were installed at the sump site in No. 1 mine. This left No. 2 free to work out its own drainage system. A sump accordingly was constructed for No. 2 mine at a point about 2500 ft. in a northeasterly direction from the shaft bottom and two Deming triplex pumps installed. These were 5 x 6 ft. and 6 x 8 ft. in baseplate size respectively. Practically all of the water collected at this point by gravity, with the exception of a little in the workings to the

Two mines, near each other and inter-connected, each had a drainage problem. It was decided finally to lead the water to one central sump, from which it could be voided by one pump. The necessary ditching was accordingly done and a large central sump and pump-house excavated. A large electrically driven, wood-lined triplex pump was then installed, while the pumps previously employed were left in place as standbys. It is believed that this arrangement satisfactorily disposes of the drainage problem at this mine for a long time to come.

west. This was later forced up into an abandoned heading by portable pumps, to run by gravity down to the sump proper.

The foregoing conditions had existed for some time when it was decided to construct a central sump in the No. 2 mine and drain both operations from this point. This decision was reached after considerable trouble had been experienced with the pumps at both stations because of the corrosive action of the water, which has a high acid content. A recent analysis gave the following results per 100,000 parts:

Free acid as sulphur.....	264.54
Silica.....	18.70
Calcium carbonate.....	13.83
Magnesium carbonate.....	0.84
Calcium sulphate.....	131.06
Magnesium sulphate.....	134.10
Sodium sulphate.....	None
Iron sulphate.....	528.46
Aluminum sulphate.....	259.51
Sodium nitrate.....	Trace
Suspended solids.....	7.60

The following quantities of reagents were required per 1000 gal. in treatment of this water for boiler use:

Lime (90 per cent).....	22.1 lb.
Soda ash (95 per cent).....	83.25 lb.
Total.....	105.35 lb.

A continual replacement of parts in the pumps had made the upkeep expense rise until it had become a considerable item. Furthermore, the capacity of the sump at No. 1 was such that only 24 hours could elapse with the pumps not running when an overflow would result. Likewise, the sump capacity at Edna No. 2 was such that but 24 hours could pass with the pumps shut down when an overflow would follow here. This would naturally endanger both the workings and the lives of the men. Thus a stoppage of the pumps at both sumps, which was entirely a possibility, would bring about a critical situation at the No. 2 sump in less than 12 hours after the shutdown.

A close comparison of the levels in Edna No. 2 mine accordingly was made with a view toward finding the ideal central location for a sump, a position which would collect the water from both mines as far as possible by gravity. A spot about 8500 ft. nearly due west from the No. 1 sump was consequently chosen.

A 10 x 16 ft. (baseplate dimensions) wood-lined Scranton pump was decided upon as the one best fitted to cope with existing conditions and to work against the head of 550 ft. which prevailed at this point. Considerable excavating was then done, which included space

for a 15 x 26 ft. pumproom 25 ft. high, lying for the most part directly over the sump. I-beams placed transversely were used as roof timbers in the construction of this pumproom, and the whole was given a cement lining. A drill hole had been driven previously from the surface to permit of a 12-in. outlet pipe.

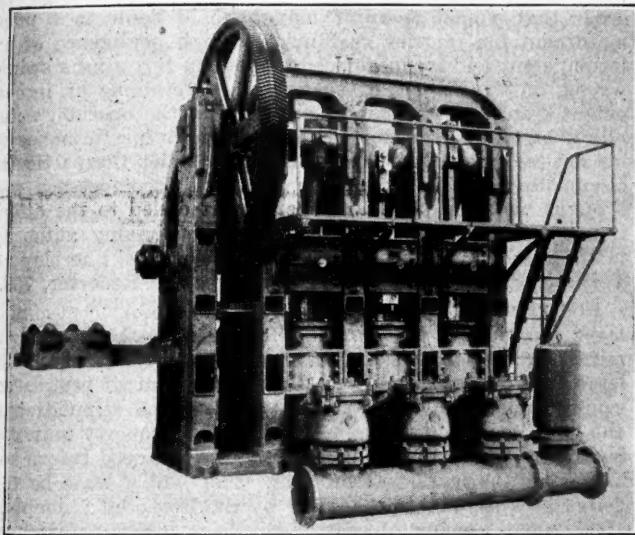
The pump was brought underground in sections, where the assembly was completed. A 150-hp. direct-current Allis-Chalmers motor was mounted on a solid concrete base and connected to the pump through a single herringbone reduction gear. The motor runs at 575 r.p.m., while the pump makes 46 r.p.m. This machine has a capacity of 750 gal. per minute through a 14-in. intake. Subsequent experiments with the capacity of the sump show that the pump must be operated continuously for three days to permit its entire drainage. This gives an idea of the amount of excavating done at this site.

Little or no difficulty was experienced with the installation of this machinery, and completed the pumproom is one of the first of its kind in western Pennsylvania containing this type of triplex pump. Because of

ideal inasmuch as water will not collect there by gravity from all parts of Edna No. 2, yet it is as nearly perfect a location as could be applied to both mines.

A review of the entire situation might raise the question of why the new pumproom was not located a little farther to the west so as to take advantage of the natural slope afforded by the dip, and cover to a greater extent the present workings. This would have meant a stupendous amount of excavating in order to divert the course of the water from its natural tendency to flow toward the No. 2 opening. A location of the central sump farther west without this excavation would have caused the flooding of the shaft bottom.

In view of these facts and bearing in mind that the tract boundary line is nearby on the west, it is practically certain that all future operations in No. 2 will never present a serious drainage problem. The use of small portable pumps may, however, be replaced at some future time by a substation when development of the coal to the south of the shaft has reached considerable proportions. This, however, appears to be the limit of any future needs as all development at No. 1 is on the upgrade of the dip and entirely self-draining to the central sump.



ELECTRICALLY DRIVEN TRIPLEX PUMP THAT HANDLES DRAINAGE WATER OF EDNA NO. 2 MINE

the wood lining in the water end, no trouble is anticipated from the acid water.

It is planned to allow the old pumprooms in Edna Nos. 1 and 2 to remain as they are. The sump at No. 1 will overflow and the water will follow the course to the sump at No. 2. The overflow from this point will run down to the new central location. A small amount of grading was found necessary from the No. 2 sump to the central sump, but this was of no great consequence as the distance is short.

The drainage problem of both mines has now been solved, the dip of the coal assisting materially in the general collection of the water by gravity. The present operations at No. 2, which lie to the west of the new pumproom, are of course on the down side of the dip and do not drain into the central sump by gravity. So far but little water has been encountered here and this small amount has been forced up to the central sump by the portable pumps previously mentioned. As the tract boundary line is in close proximity, these operations will never become extensive, nor will the distance through which the water must be moved ever become so great as to require pumping the water a second time. So while the location of the new sump is not

American vs. British Byproduct Coking Practice

An Englishman by the name of Richard Gunderson came to this country several years ago and was employed for a time on the staff of the leading byproduct-oven concern of America. He had an unusual opportunity to become familiar with byproduct practice here and recorded his observations in an article which appeared in the Mar. 1, 1919, issue of the *Gas World*, published in England. This article compares British and American byproduct coke-oven practice and brings out some highly interesting differences.

The English writer frankly admits that American coke manufacturers lead in the coke industry and states his reasons for that conclusion. Three main factors have contributed toward the phenomenal growth of the byproduct-coke industry in this country: (1) The application of science and research to the industry; (2) the location of coke works at steel plants and near large cities; (3) the control by big corporations of raw-material supplies, transportation facilities, sales forces and media for the distribution of products. Of course, the war's requirements made the last few years the psychological period for byproduct-oven construction.

In the United States 2085 byproduct-coke ovens were completed during the year 1918 alone—71 more ovens than Great Britain built from 1915 to 1919, or during practically the whole period of the war. This is not intended as an odious comparison; it is simply a statement showing the difference in the status of the byproduct oven in the two countries, for the progress of Great Britain before the war in the byproduct industry was far greater than ours.

However, while indulging in comparisons it cannot be overlooked that German byproduct ovens produced more coke at the beginning of the war than was made in the ovens of this country in 1918, and that despite the phenomenal expansion of the coke industry here, America only really commenced her byproduct-coke work some 12 years ago.

The application of science and research work did

much to establish the byproduct-coke industry here on a basis adapted to American conditions. A committee of prominent coke and steel men from the United States investigated European practice; they rejected the 8-ton Continental oven and 30-hour coking period and worked out a plan whereby now 12½ tons of coal are coked in one oven in 16 to 17 hours.

The coke masters of Great Britain consider that the shorter coking time in the United States of America is made possible by the use of unwashed coal. Twenty per cent. of the coal used in byproduct ovens here is washed. The secret lies in such coal being dried to 5 to 6 per cent. moisture content, while in Great Britain washed coal is drained rarely to contain less than 15 per cent. moisture.

As to oven operation, uniformity is insisted upon here to a degree not understood in England. Americans have secured uniformity with various mixtures of coal in varying widths of ovens by burning sufficient gas to accomplish desired results. The use of silica brick in the ovens of this country has permitted higher temperatures and higher coking velocities than in England. However, the preliminary treatment of coal, heat control and careful design of oven (considered so essential here) is of less importance, in Mr. Gunderson's opinion, than scientific operation. In Great Britain, oven workers refuse to push more than a certain number of ovens in a shift; in this country the bonus system provides the needed incentive to make the workmen push as many ovens as are ready for that purpose.

The other main points brought out by the English writer—location of plant and unity of control—throw into strong relief essentially American practice: plant layout suited to the greatest efficiency and the organization of the component parts of an industry under one head. In Great Britain the consolidation of coal, ore and steel companies has not progressed materially.

Important changes have taken place in Great Britain recently. The miner has secured a shorter working day and the price of coal has been advanced \$1.50 a ton to meet the decreased output per man and the increased mining rate, a turn of affairs in which everyone is interested. If the consumer must pay more for his coal, one way to meet the situation is to make a ton of fuel go further. It had to be done in America during the war, and conservation methods secured an average 10 per cent. saving in fuel, with a much greater percentage in certain cases. Many wasteful methods were eliminated.

Technical men here point to the byproduct coke oven as the future instrument for converting coal into more economical forms of fuel for producing energy and useful byproducts. It is even hinted that the time is not far distant when it will be illegal to use raw coal in grates or stoves; burned in this way, the byproducts are all wasted. These form by far the most valuable portion of the coal. Conservation and research received an additional impetus during the war and will doubtless continue to be of service in many fields.

ACCORDING TO D. H. DOWNEY, in Pennsylvania the greatest number, at one time, of bituminous mines employing ten men or more underground was 2000. There were in 1918 probably as many as 2000 small temporary workings, but the aggregate production of these small operations was less than 1 per cent. of the whole output.

Legal Department

BUYER'S RIGHT TO BILL OF SALE—Title to personal property passes by delivery, without necessity for a formal bill of sale. The buyer is not entitled to demand execution of such a document by the seller unless the latter has promised to execute one. (Minnesota Supreme Court, *J. I. Case Threshing Machine Co. vs. Bargabos*, 172 Northwestern Reporter, 882.)

ILLINOIS SAFETY STATUTE—The requirement of the Illinois statutes for the inspection of coal mines imposes no liability excepting for willful violation of such law. Where proper examination is made, and no dangerous condition is detected, the operator is not liable for a fall of slate. On an issue as to whether there has been a violation of the statute, evidence is not admissible to show existing conditions at the place several days before an examination was made by the mine examiner. (Illinois Supreme Court, *Eichhorn vs. St. Louis & O'Fallon Coal Co.*, 123 Northeastern Reporter, 603.)

OPERATOR'S LIABILITY FOR TRAPPER'S NEGLIGENCE—In order that a coal operator may be held liable to a mine motorman for injuries sustained through negligence of an incompetent and inexperienced trapper in throwing a switch wrong, on the ground of negligence in retaining an incompetent employee, it must be proved that the operator actually knew of the trapper's unfitness for the performance of his duties, or should have known of it under the particular circumstances. Notice of the trapper's incompetence was brought home to defendant operator if called to the attention of a representative of the company having authority in the matter. (Texas Court of Civil Appeals, *Sherbley vs. Texas & Pacific Coal Co.*, 212 Southwestern Reporter, 758.)

FORFEITURE OF COAL-MINING LEASES—A coal-mining lease was not subject to forfeiture because the lessee permitted labor liens to attach to his property on which the lessor had a contract lien to secure payment of rentals accruing under the lease, where there was no stipulation in the lease requiring the lessee to keep the property unencumbered and where the labor liens were discharged before suit to forfeit the lease was brought. Nor will a lease be forfeited because of a withholding by the lessee of a comparatively small amount of rent or royalties, where a forfeiture would be inequitable, considering the length of the term of the lease, the value of the lessee's improvements, and the fact that the lessor did not demand the amount in arrears until the day before bringing suit. (Washington Supreme Court, *Harlan vs. McGraw*, 181 Pacific Reporter, 882.)

ELECTRIC HAULAGE IN GASEOUS PENNSYLVANIA MINES—A section of the Pennsylvania mining laws provides that "electric haulage by locomotives operated from a trolley wire is not permissible in any gaseous portions of mines, except upon intake air, fresh from the outside." Plaintiff's husband was employed in defendant's mine, in which there was a trolley system. The fireboss discovered gas in a dip entry and posted proper notice of danger and barricaded that part of the mine. Later someone removed these warnings and plaintiff's husband and other miners entered the place. Thereafter some one turned on the electric current and an electric locomotive being run into the place caused an explosion resulting in death of plaintiff's husband. Held, that violation of the statute above mentioned subjects a mine owner to liability for resulting injuries not due to contributory negligence of the injured miners. And notice to a mine superintendent of the gaseous condition of a mine is notice to the owner. That negligence of the mine foreman in removing the barricade or in permitting the men to enter the mine may have concurred to bring about the accident will not exonerate the mine owner. "Of course, if decedent had entered the mine knowing of the wrongful removal of the barricade, no matter by whom, he would have taken the chances of an accident." (Pennsylvania Supreme Court, *Jaras vs. Wright*, 106 Atlantic Reporter, 798.)

The Need of Inland Water Transportation

BY W. E. JOYCE
Mauch Chunk, Penn.

GENERAL use of the water courses and canals offers one sure means of reducing commodity costs. The late Theodore Roosevelt was an ardent advocate of such a policy. Only certain lines of industry give evidence of appreciating this fact. It remains for the public at large to grasp more fully the importance of extending the usefulness of water transportation and thereby hasten its adoption.

Community spirit, magnificently shown during the past few years, cannot continue where common interest in large enterprises lags; and certainly the transportation problem is one of them. That the country has not reached the stage where Government ownership of railroads is regarded as the better plan of operation seems established. Be that as it may, the fact remains that ideas of community interest, collective bargaining, initiative and referendum decision, and general trade or labor amalgamation are growing.

This shows a definite trend—that individual enterprise, no matter how progressive in providing means to an end, without regard for public interest, must give way eventually to the more important purpose of serving the people as a whole.

The country owes much to its railroads and to those captains of industry whose acumen visualized decades to come, and whose enterprise and determined effort gave substantial aid to national development. The pioneers in railroad building contributed much to the country's greatness, and their followers carried on the work with even greater brilliancy. No other industrial agency aiding in national development can claim greater credit, so that in advocating a broader transportation policy an element of ingratitude would seem to be projected.

NAVIGABLE WATERWAYS WOULD AID RAILROADS

This, however, is not to be considered where further advance in the march of progress is imperatively demanded by national growth. On the contrary, the greatest stimulus that railroads of the country could get at this time would be through supplying additional means of transportation by making navigable the various waterways.

The history of our canals has been but partly written, and what records are now available are of a partisan character. The Erie Canal, Morris & Essex, Delaware, Juniata, Lehigh, Schuylkill, Raritan and other artificial waterways have had periods of trial, success and failure—mostly failure. Notwithstanding that this means of transportation was the first to claim attention, it has been superseded by other methods, to be practically discarded later. Even the great Barge Canal, upon which has been built the highest lift lock in the world, and which was designed to carry 20,000,000 tons of freight annually from the Middle West to the Atlantic coast, threatens to become a failure

To transport coal and other commodities by means of canals has been an ever-recurring problem. In the past such enterprises have met with decided hostility from the railroads. It would appear, however, that the time is now ripe for a thorough and careful consideration of the problems involved, to the end that the cost of moving various products, particularly bulk freight, may be reduced and the well being of the country aided.

through indifference of the Federal agencies in carrying out agreements.

There can be no doubt that extraordinary effort was applied in the early days

of canal building, as witnessed in the work of Josiah White on the Lehigh. Failing to make a contract with the City of Philadelphia to furnish an adequate water supply to the city from the Falls of Schuylkill, he turned his attention to the Lehigh and exhausted his meager fortune in an endeavor to make it navigable. He succeeded, but it was an heroic fight.

Natural laws supplying floods and freshets seemed to be the nemesis of such enterprise. The vicissitudes of the projectors were many. It cannot be said that disaster brought about in this way repeatedly did not excite public sympathy for canal builders, as is shown by the many generous grants made by legislative bodies. An illuminating instance of this generosity is given in the grant now held by the Lehigh Coal and Navigation Co. whereby an ear of corn, upon demand, was the return to be made for invaluable rights.

MANY ATTEMPTS MADE TO DEVELOP CANALS

On the other hand, time has shown that improvement upon the canal grants could have been made, and in the present day of Panama construction by legislative enactment, the promised boon upon which many of the original grants were made might have been achieved.

Enthusiasm for developing water courses as a means of transportation has had its periods. In each instance there seemed to crop out jealousies of states as well as the element of human cupidity among the individual promoters. New York, Pennsylvania and New Jersey legislators could not combine on any scheme looking toward the improvement of the Morris Canal connecting the Delaware at Easton with New York harbor. Trade from the anthracite region coming down the Lehigh Canal presented arcadian visions for all communities along its route of travel. Recommendations of committees and acts of various legislatures, embracing beautiful plans for promoting human happiness, were presented time and again, but the ogre of private gain in one form or another slipped in to submerge the prospective argosy.

Of the several canal propositions looking with gainful eye upon the coal trade in eastern Pennsylvania (which include the Morris, Delaware & Hudson, Lehigh, Schuylkill and Delaware Division), the Morris was the least favorable for securing adequate return. The Delaware & Hudson handled a large traffic at one time, but railroad interests discouraged its use, and the same was true of the Schuylkill route. The Lehigh and Delaware canals proved, under independent ownership, their ability to handle heavy traffic. The Lehigh at one time operated as many as 4500 boats. There may be 100 in use today.

Fixed charges on canal operation reduced to a tech-

nical problem under the old method were embraced in delay of lockage, repairs and attendance. These have been regarded as the stumbling block to continuance of operation on an average canal of 100 to 150 tons capacity.

A decrease in the number of locks has heretofore been recommended as an offset to this drawback. Modern engineering has been doing much to lift the canal problem from the complex to the simple class. Recommendations for securing a greater height of lift or from 8- or 10-ft. locks to 20- or 25-ft. locks, also to increase the size of barges as a means of securing the decrease in the number of locks and tonnage cost, and consequent decreased cost per ton-mile, have been made. These recommendations were long considered impracticable by experts. These experts are now entirely discredited by the locks in use on the Barge Canal at Little Falls, N. Y., which are over 40 ft. in height.

The feasibility of improving the various water courses so as to economically transport freight in quantity has passed the experimental stage. The various state legislatures seem to have recognized this fact, as does also the National Government. The great Barge Canal built across New York at an expense of \$160,000,000, designed to open transportation with the Middle West, has already caused apprehension as to its future usefulness by reason of failure of the Federal authorities to carry out plans to which they had agreed. The matter of supplying 75 barges appeared to be the stumbling block, but it is suspected that the real cause of hesitancy lay in fixing freight rates. As in the case of fixing prices on steam sizes of anthracite coal for railroad use, the Federal authorities betray a serious weakness.

While patriotism suggested vast expenditures on road building for the benefit of returning soldiers, also opening public works and farms, to which projects everybody subscribed, the fact remains that nothing is being done either for the returned soldier or the public at large, for whose welfare the citizen made a soldier of himself on the basis of democracy.

The Pennsylvania legislature has fallen into line for opening the waterways and promising extensive canal construction. There has been under consideration a proposition for making the Susquehanna navigable in part, but so far nothing definite has taken place.

The old Lehigh Canal is doing some business. As far as can be seen this practically amounts to an effort on the part of the Lehigh Coal and Navigation Co. to retain its franchise by keeping the channel sufficiently clear to pass a few boats. One or two dredges with scows of obsolete type are employed a few months in the year in dredging, but with each sigh of Jupiter Pluvius the channel overflows and service is discontinued.

Some years ago the canal extended north to White Haven, and considerable coal, lumber and other products were taken down. Mauch Chunk is the northern terminus now. The name of Coalport still clings to the loading point, which is marked by decaying chutes and elevators, but as a port only the Lehigh Coal and Navigation Co. makes any use of it. Apparently the canal pays better for the freight it does not carry as at pres-

ent operated. Retention of a franchise has a value in itself. At the same time railroad differentials, fixed decades ago, discourage effectually coal operators on canal shipping from Coalport.

By discouraging public use of the canal as a common carrier, the railroads get an advantage supposedly. For the immediate present this would appear to be good business. And yet along the tributaries of canals as well as along the main streams are fabulous quantities of freight lying untouched and which should be going to supply people of the congested communities. This is represented not alone by farm and dairy products, but by lumber, lime, hides, stone, iron ore, etc.

The best interests of the railroads are not served by shutting off this trade, because of the natural tendency of trade to multiply. In addition there is a demand for materials that otherwise go to waste, leaving a void that is productive of higher prices of commodities necessary to the human well being. Arrested development thus provides a loss to the railroads which they are now feeling keenly.

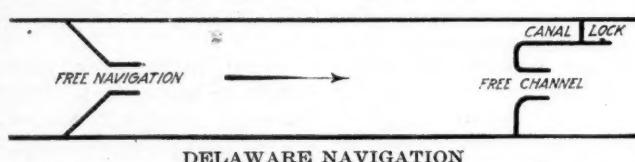
The hard-coal region has always suffered through unjust railroad tariffs which permit of longer hauls of soft coal to tide for less money. What is true of coal is also true of ore. Iron ore is hauled from Buffalo to Bethlehem at the same freight rate as is charged to points 50 miles north of Bethlehem, while from Bethlehem to Philadelphia the tariff is 30 cents less per ton than from the point 50 miles north, making competition impossible.

Such practice does not sustain the principle which induced legislatures to give away valuable franchises. When the Pennsylvania legislature voted away water and land rights along the Lehigh, it was done on the basis of promoting public welfare. Providing transportation for coal offered the means of securing employment for people who were later to develop the territory. The builders came and suffered, as pioneers always suffer. They opened the territory and gave their all to the enterprise that had induced legislative generosity in behalf of the promoters. The question then is, Have the promoters done their part?

Assuming that they did all within their means, since the situation is still far from fulfillment of original ideals, it is evident that assistance either from state or Federal agency is needed to complete the scheme. It is quite plain that without such assistance this great need will never be fulfilled, notwithstanding the imperative demand in behalf of the common weal.

It was largely through the work of the late Theodore Roosevelt that the Barge Canal, 532 miles in length, was completed. Mr. Roosevelt recognized that successful operation of the waterway as a means of transportation would contribute much not only to the State of New York but to the United States as well. On this principle he exerted his influence and the work was carried to a successful completion.

The same holds true of the several other waterways, and particularly of the Schuylkill and Lehigh traversing the anthracite belt. It would appear, however, that to secure the necessary attention from the proper authorities another Roosevelt must arise. In the absence of such a personality, however, public demand can do



DELAWARE NAVIGATION

Plan for improvement of the River Delaware submitted to the Pennsylvania legislature in 1823 by Josiah White. It will be noted that the lock system of today embraces the same ideas.

much. When the importance of the proposition is grasped by the people a demand for action will develop, and as the question is better understood this demand will become positive and insistent.

By what sinister influence the use of canals is kept from the people is not difficult to fathom. At the present time there is felt serious concern for the operation of the Barge Canal as originally intended, despite the 13 years required to build it. It is regarded as one of the country's greatest engineering achievements. Congress having taken a hand in the completion of the

work, the country at large will surely note its success or failure. It is significant that the question of freight rates was injected into the contract proposition and made partly responsible for the Government's failure to supply the steel barges as originally agreed.

In the meantime people of Philadelphia and coast cities are no less interested in transportation on the Lehigh and Schuylkill than are the people of the coal regions, whose opportunities for increasing trade and the opening of better markets would be thereby greatly improved.

Creek Control at Kingston, W. Va.

BY WALTER H. DUNLAP
Kingston, W. Va.

KINGSTON, W. VA., occupies the valley of Milburn Creek from the head of the hollow for a distance of a mile or more down the stream. Thus, in common with many other coal-mining camps in this and neighboring states, it has a problem of creek regulation. From the rim of the mountain some 1200 to 1500 ft. above the town the slopes of the watershed fall off abruptly at angles of 25 to 35 deg. to the creek, which flows through the town on a grade of from 4 to 3½ per cent. The floor of the valley varies from 50 to 100 yd. in width and is occupied by the creek, railroad, highways, houses and yards, the stream meandering from side to side of the valley as it proceeds through the town. The creek is subject to violent freshets during the course of which it usually overflows its banks at one point or another and selects a new channel for itself, destroying highways, gardens, etc., and doing other damage incidental to the change.

The problem here involved is to decide upon some particular location for the creek and to compel it to stick to that location. The town would be in a more fortunate position now if the creek had been thrown to either one side or the other of the valley at the time the camp was laid out, for in that event there would now be only one side of the creek to revet and the layout for highway crossings, etc., would be simplified.

It is estimated that the discharge of the creek during freshets may sometimes reach upward of 600 cu.ft. per second, especially as the slopes of the watershed become more and more denuded of trees in providing mine timbers. After figuring on various cross-sections of channel and types of construction designed to provide waterways for this discharge, the type illustrated has been tentatively selected and a short section constructed as an experiment.

The underlying idea is to continually divert the water away from the sidewalls toward the middle of the channel, thus guarding

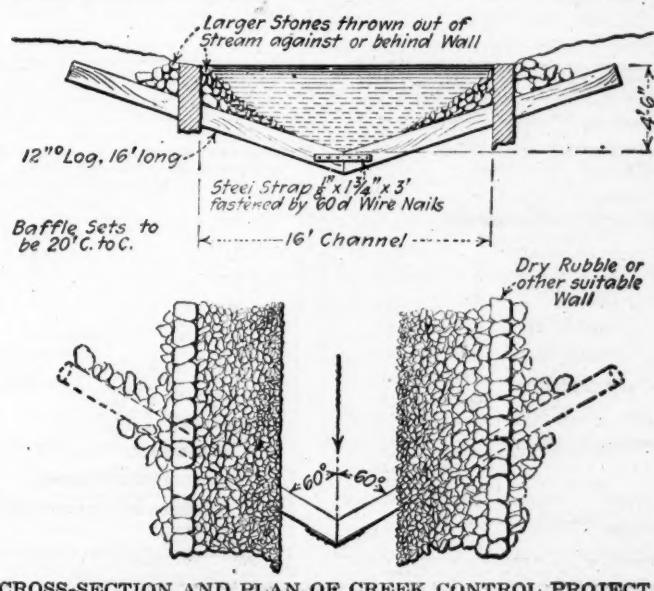
against undermining of the sidewalls and also aiding the creek in its function of garbage carrier by concentrating the flow at low stages. The poles employed are well embedded in the bank and, like the snags ordinarily found along the banks of streams, should last for a long time. The walls may be constructed of timber cribbing, dry rubble masonry, concrete or any other suitable material that may be available.

The poles will prevent the stream from cutting out locally a channel of steeper gradient than the normal, and the sidewalls, by concentrating the flow, should provide sufficient velocity to keep the water from depositing sediment and filling up the channel. Thus the combination of poles and sidewalls should act to maintain a uniform gradient and cross-section.

Should a large obstacle get into the channel, the decreased cross-section at that point would cause a corresponding increase in the velocity with the result that the obstacle would be rolled along the channel or, by a process of undermining and sinking into the hole thus provided, be partially buried. In the meantime, the water dammed up back of the obstacle would deposit its sediment, possibly to the height of the obstacle, and if the sidewalls were not sufficiently high the stream would overflow its banks. In a channel with a continuous lining, such as concrete or cobble-stone paving, the obstacle would have no chance of burying itself so that

the type with the baffle sets has the advantage of greater elasticity, in addition to that of lesser expense. It is hoped that, in the event of overflow, the sidewalls would not give way and that most of the water would continue to follow the regular channel, the excess being insufficient to accomplish much damage.

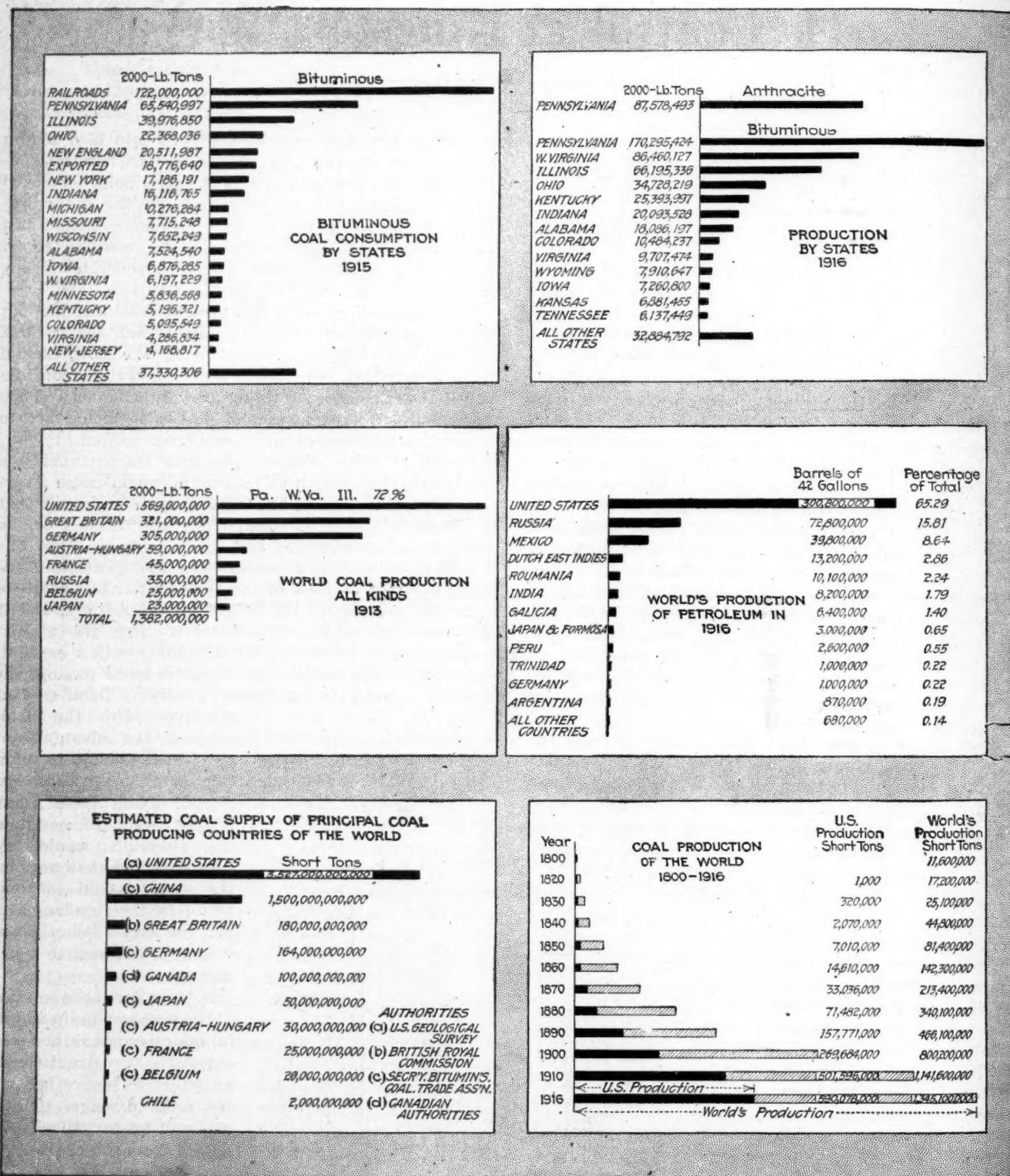
It is believed the solution of the problem lies in watchful maintenance rather than expensive construction in an effort to insure immunity from damage. Obstacles will be periodically removed from the creek.

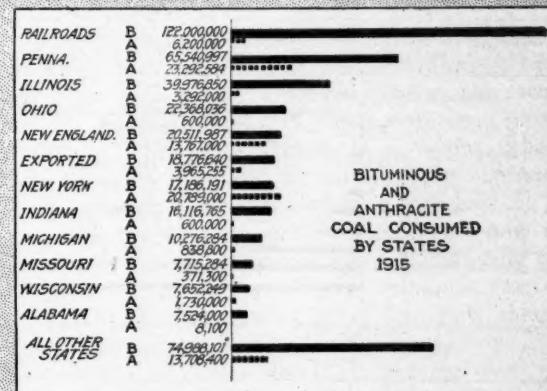
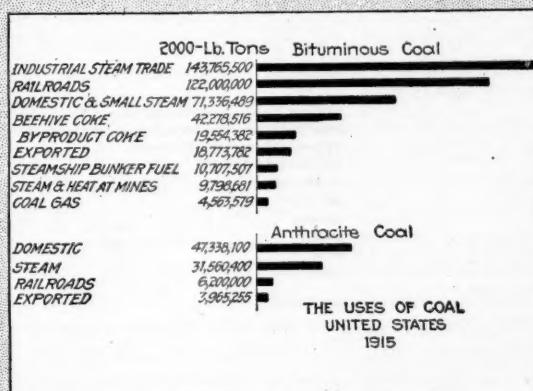
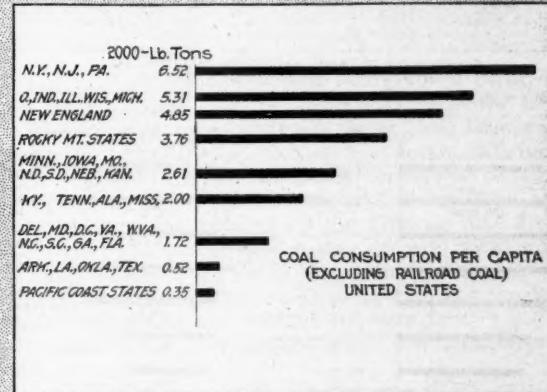
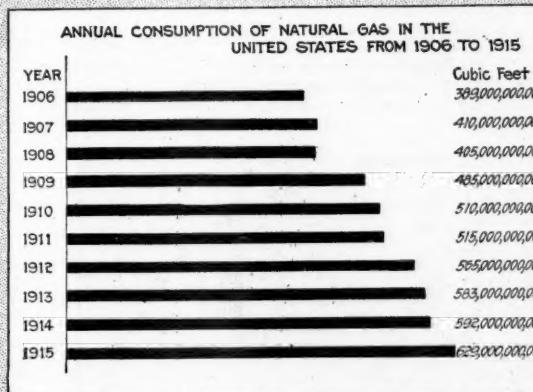
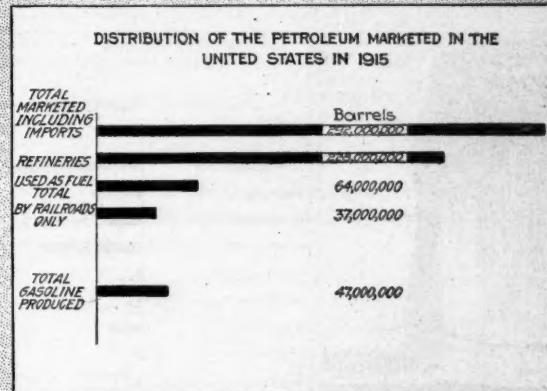
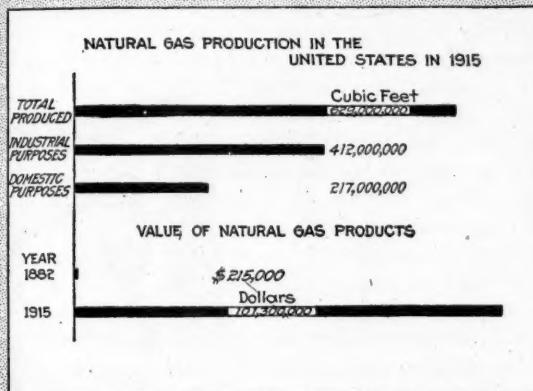
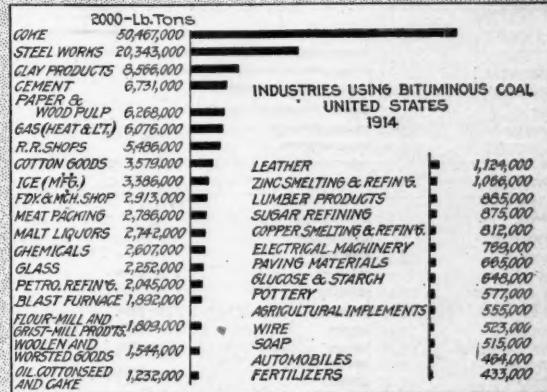
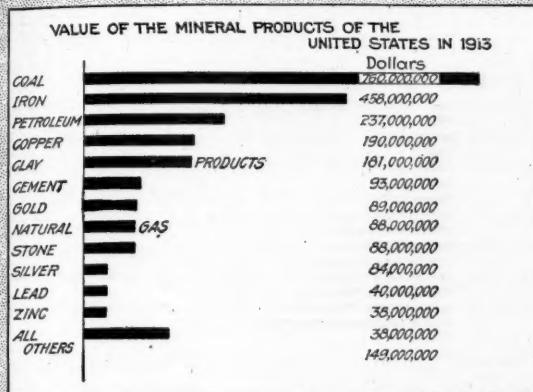


Statistical Sidelights on Our National Fuel Problem

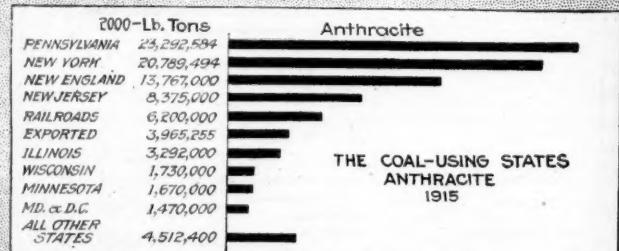
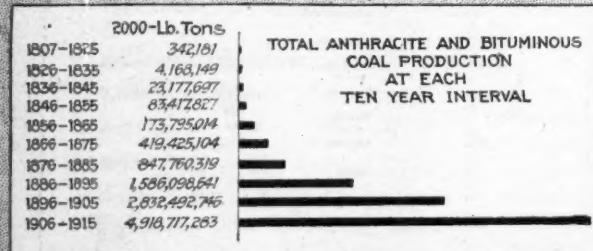
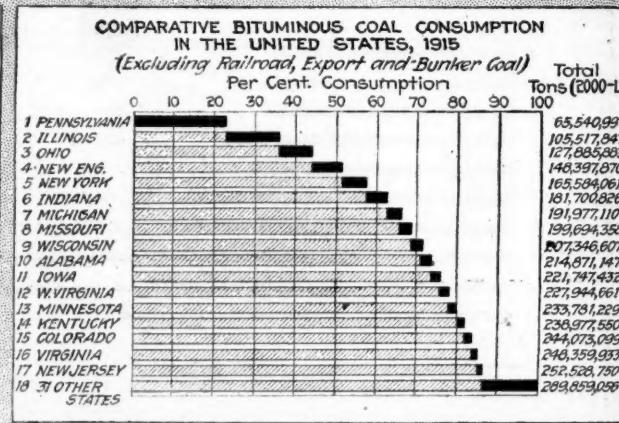
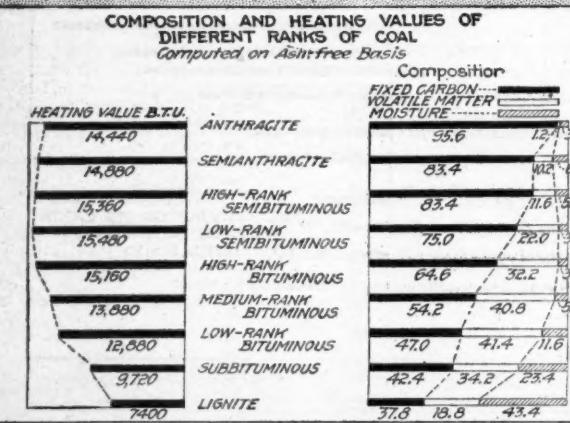
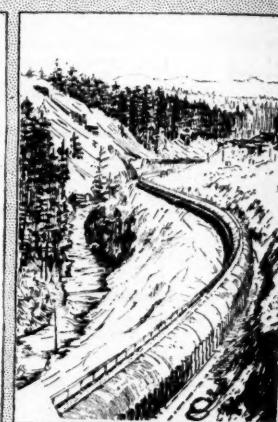
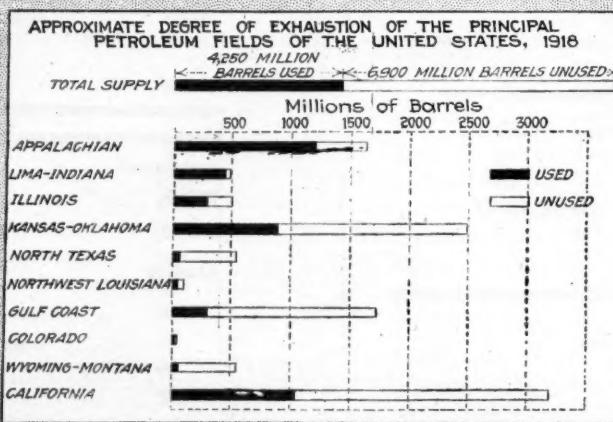
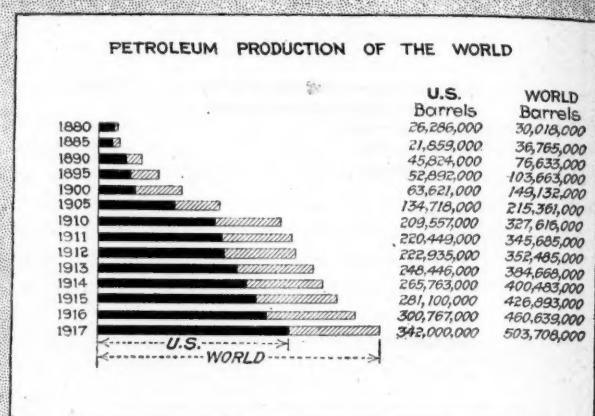
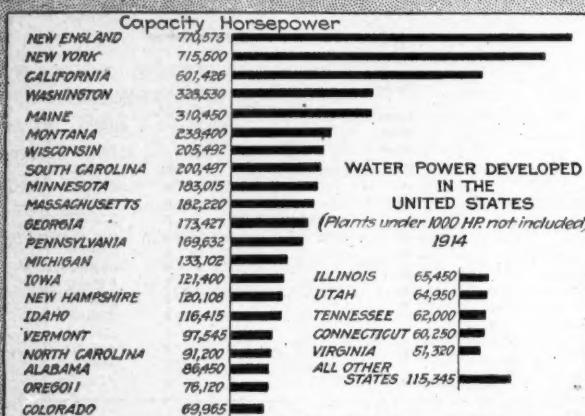
From many sources the Connecticut Committee on Coal Conservation and the Engineering Council Committee on Fuel Conservation, of which C. G. Bill, of Hartford, Conn., and L. P. Breckenridge, of New Haven, Conn., were respectively chairmen, have compiled several tables giving the production and consumption of coal and petroleum for a number of years. To these data some other statistics have been added. Unfortunately, as is usually the case, some statistics are

not quite up to date. Nevertheless, in many ways the figures of 1913 and 1914 given in the charts shown on this and the following two pages indicate more nearly present conditions than those of the period during which the war had reached its height. The ultimate source of the tables here reproduced is the Proceedings of the Pan-American Scientific Congress, the U. S. Geological Survey (C. E. Lesher for coal and R. H. Fernald for petroleum) and the Bureau of Mines.





CHARTS SHOWING HOW COAL HEADS ALL MINERALS, WHAT INDUSTRIES USE COAL AND HOW MUCH, THE PRODUCTION OF NATURAL GAS AND PETROLEUM, AND THE CONSUMPTION BY STATES AND BY USES



CHARTS EXHIBITING THE DEVELOPED WATER POWER OF THE UNITED STATES, THE PRODUCTION OF PETROLEUM, THE DEGREE OF EXHAUSTION OF PETROLEUM, THE HEATING POWER OF DIFFERENT TYPES OF COAL, THE GROWTH OF THE COAL TRADE AND SOME FACTS AS TO THE MANNER OF USE OF THAT FUEL

Anthracite Operators to Bring Test Suit Against United States

Independent anthracite operators of Pennsylvania, consisting of the companies other than those commonly known as the "railroad coal companies," sustained such severe losses during the regime of the United States Fuel Administration that they are now preparing, and will shortly begin in the Court of Claims of the United States, a test suit against the United States to determine whether, under the Lever Act which authorized the Fuel Administration, the United States is not liable to damages.

It will be alleged that the company bringing the suit operated its mine during the entire period of Fuel Administration control, and that, under the restriction of prices maintained by Dr. Garfield, the prices it was permitted to charge for its product were so low that it barely got back its out-of-pocket costs of mining and preparing, making no profit whatever, whereas, if it had not been restricted in such a manner, it would have been able to make a just and reasonable profit.

The act of Aug. 10, 1917 (H. R. 4961), in Section 25, provides: "In fixing maximum prices for producers the commission shall allow the cost of production, including the expense of operation, maintenance, depreciation and depletion, and shall add thereto a just and reasonable profit."

This test suit will determine the liability of the Government to a large number of coal operators, in both anthracite and bituminous fields, who from patriotic principles kept their plants going during the period of Federal control although they knew they were operating at a compulsory loss. The operators maintain that the conditions were fully known to the United States Fuel Administrator, but in spite of this he failed to remedy conditions.

DR. GARFIELD SAID PRICES WERE TOO LOW

It will be remembered that when Dr. Garfield withdrew the maximum price and other restrictions on anthracite as of Feb. 1, 1919, he made a statement in which he said that the cost of mining anthracite had been increased to such an extent "that many of the companies were not receiving a fair return, and that some producers of necessary coal were actually sustaining a loss on the sale of coal at the Government prices." He also said that "had the Fuel Administration's active control over maximum prices on anthracite coal been continued," the maximum prices would have necessarily been raised "possibly as much as fifty cents a ton."

If this test suit is successful, other suits will doubtless be brought as many coal companies suffered severe losses due to heavy increases in wages, authorized or imposed by the Government, and to advanced costs in materials and supplies which had to be purchased at prices fixed by various governmental price-fixing boards, and then had to sell their coal at prices which did not cover these increases in expenses. The Fuel Administration declined to recognize as part of increased costs any royalties which were higher than an established figure fixed by them, and many coal operators had to pay royalties largely in excess of this sum. The prices fixed by the Fuel Administration as permissible for the selling of coal were in many cases based upon the assumption that steam sizes of coal could be sold at

certain schedule prices, which as a matter of fact were unobtainable and theoretical, and did not, therefore, yield to the operator the net return upon which the Fuel Administration calculated the intended revenue. The test action will be brought by Henry S. Drinker, Jr., of the firms of Dickson, Beiter & McCouch, of Philadelphia. Associated with Mr. Drinker will be William A. Glasgow, Jr., and Percy C. Madeira, Jr., of Philadelphia, and Douglas M. Moffat, of Cravath & Henderson, of New York, representing coal companies having similar cases.

Many New Cars Will Soon Be Available for Coal Loading

As a result of the discussion before the Senate Investigating Committee concerning the coal car supply, the Director General of Railroads has issued the following statement supplementing his extended statement of Aug. 14:

In connection with the car-supply situation, I believe it will be of interest to give the status as of Aug. 26, 1919, of the open-top cars contracted for by the Railroad Administration.

The details as of Aug. 26 follow. Of the total of 50,000 open-top cars mentioned, 45,000 are available for coal loading.

OPEN-TOP CARS					
	55-Ton Hopper	Composite Gondola	70-Ton Hopper	70-Ton Low Side	Total
Number ordered.....	22,000	20,000	3,000	5,000	50,000
Completed and in service Aug. 26.....	12,935	8,051	762	2,397	24,145
Completed and in storage Aug. 25 (the numbering and placing of these cars in service is now in progress).....	8,186	8,498			17,478
To be built.....	879	3,451	2,238	1,809	8,377

The cars shown as being in storage are being numbered by the car works and placed in service at the rate of 250 to 275 per day. The railroad shops have been called upon to assist in numbering such cars and this will increase the daily number of such cars placed in service hereafter. The cars shown as yet to be built are being built and placed in service at the rate of 75 per day, so that from 325 to 350 cars of this class are being put into service daily.

The composite gondolas are being delayed because two of the large plants have been on strike for the last month and consequently are turning out very few.

Two plants are building 70-ton low side cars. One is now on strike.

Conducting Aluminum—A New Invention

A new invention called conducting aluminum M. 277, which is said to be creating a profound impression, has been made by Dr. Georges Giulini, the most famous expert in the aluminum trade, states Consul Philip Holland, Bazel, Switzerland, in a recent report. This new metal is produced by putting the ordinary aluminum through a special patented process, by which it acquires the same mechanical qualities and capacities as bronze, copper and brass without changing its specific weight.

It is said that the price of the new metal can be kept within very low limits; so that, even at the pre-war prices of other metals, it will be able, by reason of its smaller specific weight, to compete with copper and brass very favorably. The fact that the new metal is a conductor will make it especially in demand in the electrical trade.



WHAT THE ENGINEERING SOCIETIES ARE DOING

Eighth Annual Safety Congress of National Safety Council

Some of the most important problems before American industry today, such as the anticipation of labor unrest, increasing plant efficiency and production, decreasing manufacturing costs, and the whole subject of labor management in general, will be discussed in connection with the subject of accident prevention at the eighth annual safety congress of the National Safety Council, to be held at the Hotel Statler in Cleveland, Oct. 1 to 4.

The great bulk of the accident-prevention talent of the country—160 scheduled speakers and approximately 3000 men and women who direct the safety work of the nation's greatest industries—will come together for a four-day exchange of ideas and experiences. The Council has adopted the following slogan for the congress: "We have fought to make the world safe for democracy; let us now work to make industry safe for humanity."

There will be four general sessions, four round tables, and 35 sectional meetings during the congress. As all the general sessions will open at 2 o'clock in the afternoon and the sectional meetings at 9.30 o'clock in the morning, it will be possible for any one to attend all the general sessions and also all the sectional meetings for his particular industry. There will be three meetings each of the metals, mining and steam railway sections, one meeting each of the marine and navigation and textiles, and two meetings of each of the following sections: Automotive, cement, chemical, construction, electric railway, health service, packers, paper and pulp, public safety, public utilities, rubber, woodworking, and women in industry.

The first general session, scheduled for Wednesday afternoon, Oct. 1, at 2 o'clock, will be held in the ballroom of the Hotel Statler, and is to be devoted entirely to a discussion of employees' representation under the following subheads: "Coöperation and Industrial Progress," Cyrus McCormick, Jr., works manager, International Harvester Co., Chicago; "Experience of Wm. Demuth & Co. in Industrial Democracy," F. L. Feuerbach, factory manager, Wm. Demuth & Co., Richmond Hill, N. Y.; "Practical Aspects of Employees' Representation," E. B. Tolsted, Independence Bureau, Philadelphia, Penn.; "Employees' Representation from the Standpoint of Organized Labor"; "Labor Management and Collective Bargaining," W. M. Leiserson. Following the addresses there will be a general discussion.

A good old-fashioned round table, of the sort which has always been a feature of the National Safety Council's annual congresses, will be held Thursday morning, Oct. 2, at 8 o'clock. Dr. Lucian W. Chaney, of the United States Bureau of Labor Statistics, will lead with a paper headed "Is Industrial Death Necessary?" to be

followed by L. A. De Blois, of the E. I. du Pont de Nemours & Co., with a paper on "Supervision as a Factor in Accident Prevention." From 8:30 a.m. to 9:30 a.m. there will be a free-for-all discussion.

An ABC session has been arranged primarily for the benefit of the younger safety engineers and others who want to hear of how to put safety across. It will be held Thursday morning, at 9:30 o'clock. Discussion will follow each of the five papers to be presented.

Of particular interest to mining men will be the mining section, which is to hold forth Thursday morning, Oct. 2, at 9:30 o'clock. A. H. Fay, mining engineer, United States Bureau of Mines, will deliver a paper on "Mine Accidents, English Speaking vs. Non-English Speaking Employees," to be followed in order by M. W. Gidley, safety inspector, Copper Queen Consolidated Mining Co., "Training and Handling of Men"; E. E. Bach, chief, Americanization Bureau, State of Pennsylvania, "Labor Turnover and Its Relation to Mine Accidents"; Charles F. Willis, consulting supervisor of industrial relations, Phelps Dodge Corporation, "Industrial Relations in the Mining Industry."

On Friday morning, Oct. 3, at 9:30 o'clock, the mining section will convene for the second time, the papers and authors being as follows: "Fire Prevention in Anthracite Coal Mines and Necessary Equipment for Fighting Mine Fires," M. W. Price, efficiency engineer, G. B. Markle Co.; "Effective Use of Rescue Apparatus in the Fighting of Mine Fires," T. Ryan, Mine Safety Appliance Co., Pittsburgh, Penn.; "The Desirability of Standardizing Mine Rescue Training and a Plan for Standardization," D. J. Parker, mine safety engineer, United States Bureau of Mines Experiment Station, Pittsburgh.

The third and last session of the mining section will be held Saturday morning, Oct. 4, at 9:30 o'clock. Three papers are scheduled, these being "A Compilation of Chute Types for Loading Ore Into Tram Cars in Metal Mines," C. A. Mitke, mining engineer, Phelps Dodge Corporation; "The Importance of Safety Measures to the Miner," Major Arthur S. Dwight, chairman of the Industrial Organization Committee, American Institute of Mining Engineers; "Need for a Definite Technical Service in the Mining Section of the National Safety Council," B. F. Tillson, assistant superintendent, New Jersey Zinc Co., Franklin, N. J.

In connection with the congress there will be a safety exhibit at which practically all of the leading manufacturers of safety devices will be represented. This feature of the congress, under the joint auspices of the National Safety Council and the Safety Institute of America, will be opened at 8 o'clock, Monday evening, Sept. 29, and will be open thereafter between the hours of 11 a.m. and 11 p.m. daily. The exhibit will close Saturday, Oct. 4, at 6 p.m.



Vesta Coal Co. First-Aid Meet

California, Penn., was recently the scene of a first-aid meet held under the direction of the Vesta Coal Co. The event took on something of the nature of a holiday for both the employees and townspeople. Meeting at the first-aid hall in the town, the participants paraded to Normal Field and were later served luncheon. Three teams, the pick of the men at their respective mines, competed with No. 1 team from the California mine, making the best final average of time and percentage, No. 2 team being from W. Brownsville and No. 3 team from Denbo.

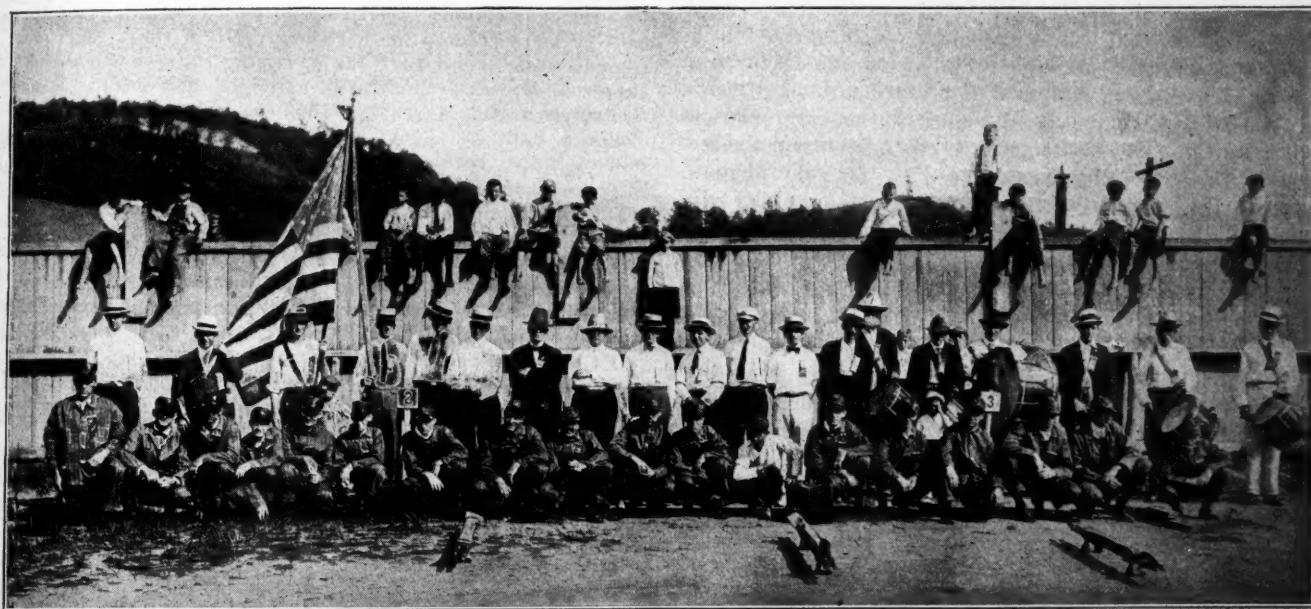
The judges were represented by H. D. Mason, Jr., of the Mine Safety Appliances Co., acting as chief; J. W. Bowles, of the Pittsburgh Terminal, Railroad

teams have worked together for a number of years, in particular those of No. 1 team, the foregoing scores furnish some interesting material for speculation as to the keenness of competition that can be expected at the Bureau of Mines meet in September.

Pond Creek Coal Co. Holds Successful First-Aid Contest in Kentucky

BY G. E. DAUGHERTY
Stone, Ky.

The second annual first-aid contest of the Pond Creek Coal Co., held at Stone, Ky., Aug. 10, was so successful that the company intends to start a systematic movement looking toward accident prevention and safety education. Much time and money will be spent in an ef-



TEAMS THAT PARTICIPATED IN RECENT VESTA COAL CO. MEET

and Coal Co.; J. C. Davies, of the Mine Safety Appliances Co., and Capt. W. J. German. M. J. West and R. D. Hazlett handled the recording of points. D. R. Blower as chief, C. O. Roberts, Joseph Edwards and Eldridge Coopenhaver completed the list of managers.

Using the system of scoring that will be employed in the meet to be held later on in Pittsburgh, two team problems—a one-man problem and a two-man problem—were given the representative teams. The following percentages and time were made:

Event No.	Team No. 1		Team No. 2		Team No. 3	
	Time in Minutes	Per Cent.	Time in Minutes	Per Cent.	Time in Minutes	Per Cent.
1.	4	100	2	92	4	93
2.	12	94	10	91	10	94
3.	7	100	6	88	7	97
4.	11	100	9	99	12	95

When it is considered that the men in the three

fort to improve the working and living conditions of the company's employees. An experienced safety and efficiency engineer has been employed, whose efforts will be devoted chiefly to looking after the welfare of the workers. The improvement of conditions where energy is wasted will be given first thought, then healthful surroundings, both inside and out of the mines, will receive attention.

Educational work has been going on for some time among superintendents, foremen and assistants, so that the safety plan will be well understood by all those who hold official positions. It is expected that the best results will be attained only through the coöperation of the officials, who are untiring in their efforts to instil a spirit of trust and consideration among all concerned.

The first-aid contest was the first public test given the

movement. The spirit manifested by the entire organization was so evident that there is no question that the efforts of officials in directing the work assigned to them has proved successful. Ten teams took part in this event. Every man held a first-aid certificate and displayed a knowledge of taking care of an injured person that is found only in men of special ability and training. It is evident, therefore, that consistent training brings beneficial results to the community.

Major Dr. L. F. Boland, of the Stone Hospital, acted as chief judge, assisted by Dr. W. T. Smith, of Tierney; Dr. W. T. Flannagan, of McVeigh, and Dr. T. P. Collier, of Hardy. All were so well pleased with the high order of efficiency displayed by the teams, that the lowest percentage given was 96. The following teams received ratings of 100: Stone No. 3, Hardy No. 2, electricians, mechanics, and the team composed of division mining engineers.

Medals and certificates were awarded to the best teams by the American Red Cross and the National Safety Council. A specially designed gold watch fob was presented to each member entering the contest by General Superintendent J. T. Sydnor.

Tenth First-Aid Contest of Susquehanna Collieries Company

The State Armory at Nanticoke, Penn., on the evening of Aug. 26, was the scene of the tenth annual first-aid contests of the Wyoming Division of the Susquehanna Collieries Co. The various events were keenly contested. General C. B. Dougherty, assistant to the general manager of the company, gave an interesting talk. He spoke of the value to be derived from first-aid work and first-aid contests, and paid a merited tribute to the employees of the company who became active in this work.

Dr. J. M. Maurer, chief surgeon of the company, delivered an instructive lecture, in which he said that the first-aid corps of the coal regions were the nucleus of a world-wide movement for first-aid treatment to the injured, and that of the millions wounded in the recent war, 80 to 90 per cent. were able to return to the firing line within two or three months from the time they were wounded, owing to proper and efficient first-

aid treatment which they were able to receive upon the battlefield.

During the various first-aid contests music was furnished by an excellent orchestra. After the competitions there was dancing. The result of the different events follows:

One-Man Event, No. 5 Colliery—Winner, No. 4 slope team, composed of Herbert Winfield, captain; Joseph Yankowski, subject, and George O. James.

One-Man Event, No. 6 Colliery—Winner, No. 1 drift team, composed of Evan O. Thomas, captain; Stanley Buber, subject, and Nick Dolinski.

One-Man Event, No. 7 Colliery—Winner, North shaft team, composed of Edgar Clarke, captain; Clemens Schultz, subject, and John J. Kryggor.

Two-Man Event, No. 5 Colliery—Winner, No. 2 shaft, composed of Andrew Dorak, captain; William Howells, subject; John Wadzinski and Andrew Estvanick.

Two-Man Event, No. 6 Colliery—Winner, outside team, composed of Eli J. Thomas, captain; John Skordinski, subject; Peter Kush and Thomas Wright.

Two-Man Event, No. 7 Colliery—Winner, South shaft team, composed of David Lewis, captain; Russell Rowett, subject; Paul Chepolis and John Grout.

Three-Man Event, No. 5 Colliery—Winner, Stearns team, composed of Clarence Duncan, captain; Andrew Fedorchak, subject; John Litchkowski, Andrew Novak and Stanley Rigmalski.

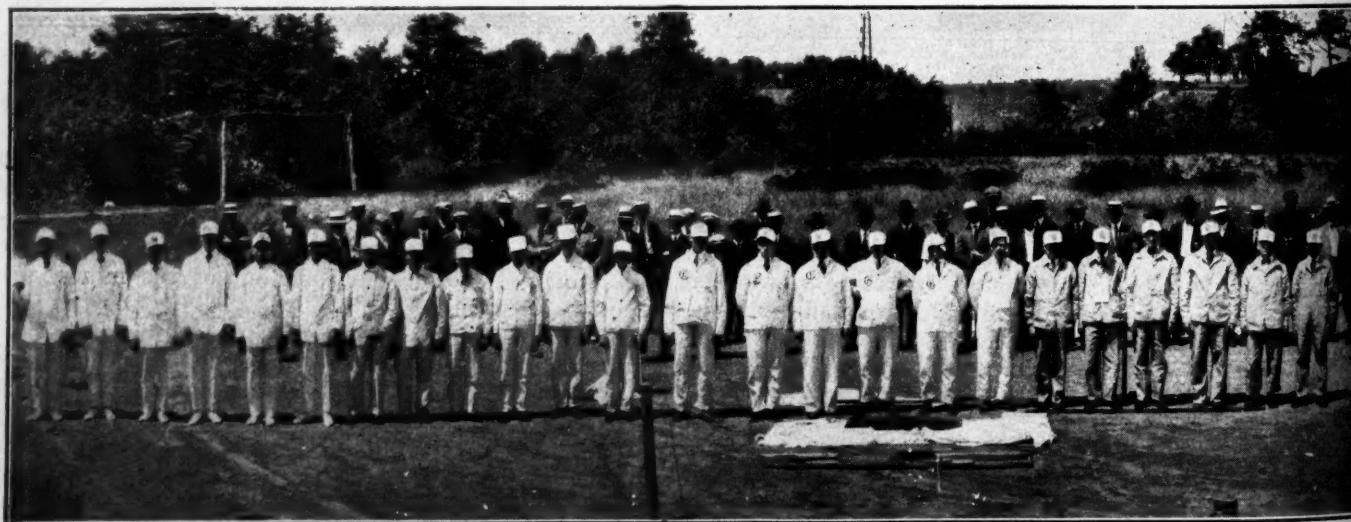
Three-Man Event, No. 6 Colliery—Winner, tie between No. 6 and No. 7 shaft teams, each member of each of these two teams receiving a prize of \$2.50. Five teams of this colliery were entered in this event. No. 6 shaft team was composed of Bruno B. Naakja, captain; Steve Rembetski, subject; Marion Olindzinski, Martin Kush and James Gallagher. No. 7 shaft team was composed of Kostic Tekoski, captain; Leon Vaseadny, subject; Elmer Shelman, Bolish Terkoski and Andrew Hillan.

Three-Team Event, No. 7 Colliery—Winner, South shaft team, composed of David Lewis, captain; Russell Rowett, subject; Robert Monday, John Grout and John Hudatchek.

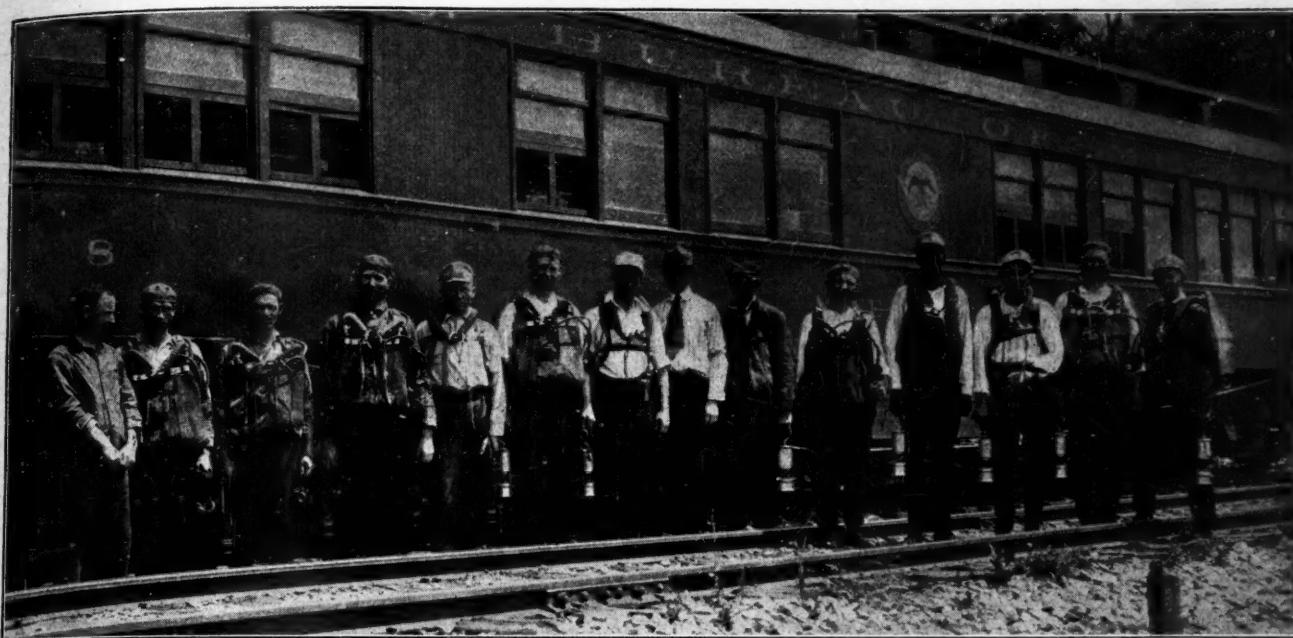
Full-Team Event, No. 5 Colliery—Winner, No. 5 outside team, composed of John Hutchko, captain; Fred Poulson, subject; Michael Danilowicz, William Yachimowicz, Otto Schissler and Julius Wolfe.

Full-Team Event, No. 6 Colliery—Winner, No. 6 tunnel team, composed of John Maddy, captain; John Gavish, subject; William Stevens, Peter Humphrey, Anthony Sawinski and Steven Gotcha.

Full-Team Event, No. 7 Colliery—Winner, No. 7 outside team, composed of Fred Lohman, captain; Ralph Young, subject; Norman Eckerd, William Michelswicz, Albert Keopke and John Turley.



MINE RESCUE AND FIRST AID TEAMS THAT CONTESTED IN THE ELIMIN



CREW WHO WERE INSTRUCTED IN RESCUE WORK AT THE RACHEL MINE OF THE CONSUMERS FUEL CO.

Central Pennsylvania First-Aid Meeting

Elimination first-aid contests are now being held in the mining districts all over the country in preparation for the Bureau of Mines national meeting, to be held at Pittsburgh, Penn., Sept. 29, 30 and Oct. 1.

The photograph shown below pictures the mine team that recently contested in a well-handled elimination first-aid meeting held by the Rembrandt Peale coal interests at Sunset Park, near St. Benedict, Penn. These teams were all trained by Messrs. Berry and Nairn, of the United States Bureau of Mines. The team from the Royal Mine, Munson, Penn., captained by John Troup, won first prize with a percentage of 96.75, and the team from Glen Richey Mine, Glen Ridge, Penn., won second prize with an average of 96.25.

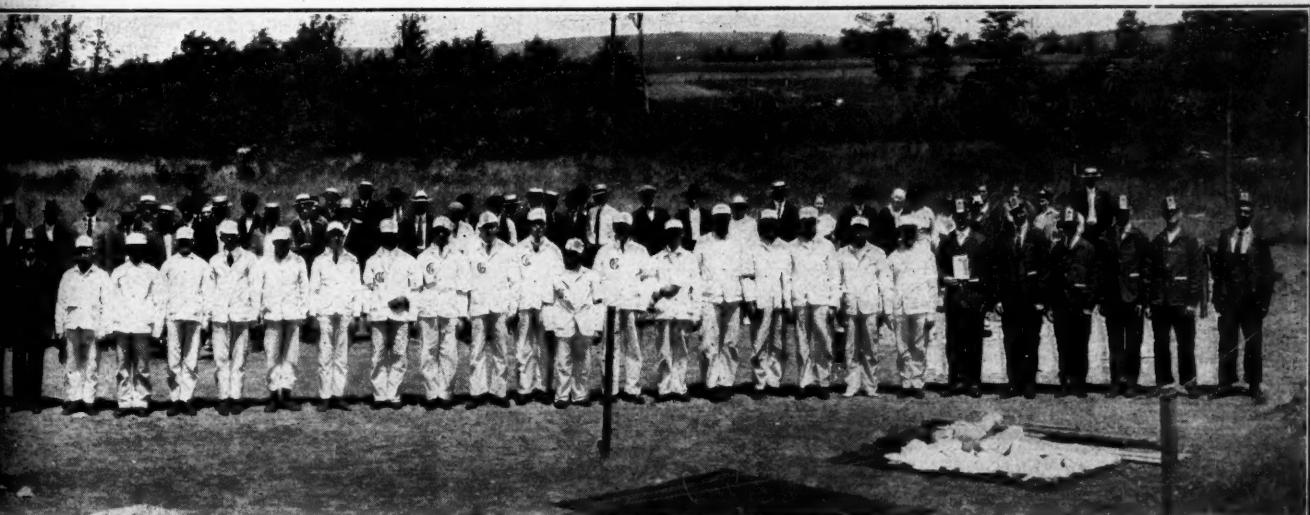
Four full-team events were contested, with H. D. Mason, Jr., acting as chief judge, and J. C. Davies, W. G. Duncan, H. M. Evans, J. W. Boles, R. D. Blair, V. J. Mulverhill and D. R. Ealy assisting. The two winning teams will be sent to the Bureau of Mines contest at Pittsburgh in September.

Mine-Rescue Car in West Virginia

U. S. Mine Rescue Car No. 8, shown in the illustration above, recently completed one of the most satisfactory periods of training in mine-rescue and first-aid work in the West Virginia field, in which interval thirty men were trained in first aid at the Eureka mine of the Consumers Fuel Co., at Randal, W. Va.

Rescue Car No. 8 then moved to Downs, W. Va., where the Rachel Mine of the same company is located. The period of training here covered three weeks' time, in which about 75 men were qualified: 50 in first aid, and 25 in mine-rescue work. William McCoy, Inspector for the Bertha Coal Co., and Charles Wilhelm, mine foreman at the Rachel Mine, had charge of the work.

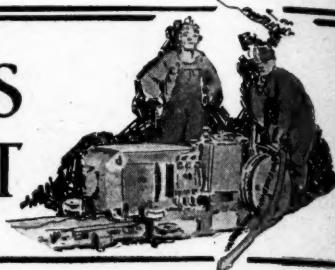
The work of the U. S. Bureau of Mines is being extended as rapidly as possible in the West Virginia field, and if such interest was displayed at all points of the itinerary as was shown in the case of the Consumers Fuel Co., and Bertha Coal Co., the crew on Car No. 8 would feel greatly gratified and amply repaid for their efforts extend this praiseworthy work.



THE ELIMINATION OF THE REMBRANDT PEALE COAL INTERESTS IN PENNSYLVANIA



NEW APPARATUS AND EQUIPMENT



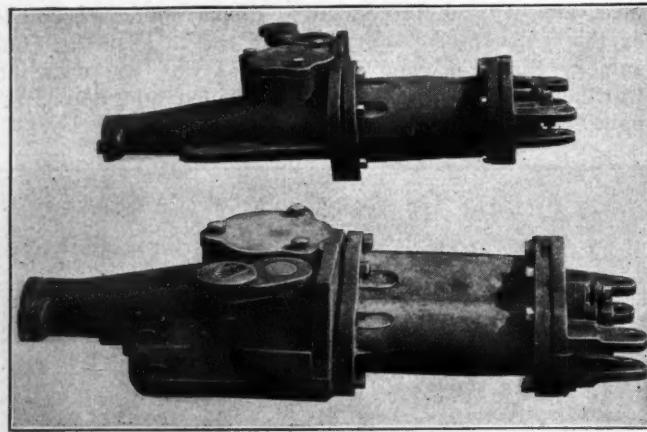
A Fluid-Controlled Check Rail Device

A fluid-controlled check rail for regulating the speed of coasting mine cars has been patented recently by G. M. Johnson, of the G. M. J. Manufacturing Co., of Pittsburgh, Penn. It is intended for use at grades, dips, knuckles and inclines, at the bottom of shaft mines, as well as at the entrance to tipplers. That the services of men employed as brakemen and spraggers will no longer be required after the installation of the mechanism, is the assertion of the inventor.

The principal features of the new invention are its regulation of the speed of a car to any desired number of feet per minute, its practical ineffectiveness against a slow-moving car and its simple construction.

The main parts of the device are two angle bars used as friction rails, two adjustable hydraulic controllers employed to function the angle bars, two rear bearings and the necessary intermediate bearings used in conjunction with the friction rails, together with the necessary connecting pins, bolts and screws.

The following arrangement of parts is made: One controller is placed on the track supports, on the inner side and adjacent to each track rail. Five bolts securely fasten each controller to the ties or whatever the track supports may be. A bearing for carrying the end of the angle bar is affixed to the track rail supports on the inner side and adjacent to each rail at a distance from the controller determined by the length of the angle bar used. The bearings are in turn bolted to the

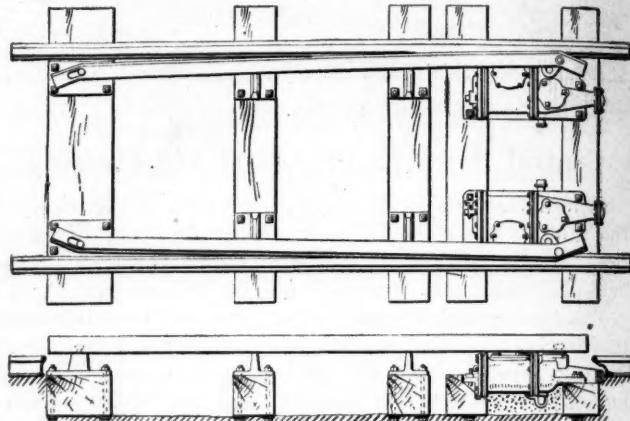


RIGHT AND LEFT HAND HYDRAULIC CONTROLS

ties. The intermediate bearings are bolted to the ties.

One end of each angle bar has a slide mounting on the rear bearing while the opposite end is pivoted to the controller crank by means of a large cap screw. The angle bar known as the friction rail then stands at a slight angle with respect to the track rail, its rear end being inside the gage line while its forward end overlaps the gage of the track rail.

To illustrate the working of the device, it may be assumed that the adjustment hand of the control has been set to pass cars at a speed of 200 ft. per minute. The wheels of a car entering at a speed of, say, 500 ft. per minute engage the faces of the vertical legs of the friction rails and force them inward or toward the center of the track. The fluid within the controller cylinders immediately sets up resistance against the



DIAGRAMMATIC VIEW OF CHECK RAIL INSTALLATION

accompanying movement of the pistons. This results in excessive friction being brought to bear upon the wheels of the car until the speed has been reduced to roughly 200 ft. per minute, at which speed the resistance begins to decrease. By the time the speed has been brought down to 200 ft. per minute, resistance to the motion of the car has vanished, since the area of the controlling part in the valves has been set to allow the fluid to escape freely at this speed. The car then moves out of the friction rails and the recoil springs immediately force back the pistons. This action automatically returns the friction rails to their former position.

New Rivetless Conveyor Chain

A new type of rivetless conveyor chain has recently been invented and patented by J. C. Law. This chain is made of drop-forged steel and malleable iron by the Endicott Forging and Manufacturing Co., of Endicott, N. Y. It will also be manufactured of manganese steel by the Taylor-Whariton Iron and Steel Co., of High Bridge, N. J.

In the accompanying illustrations, Fig. 1 shows the model of two designs of this chain, together with two side, or locking, links. Fig. 2 shows one of the models taken down, revealing the simplicity of parts. Fig. 3 is a detail of the various pins, rollers and links, both plain and carrying attachments.

The simplicity of this chain is perhaps its strongest feature. It will at once be observed how few parts are required, and also how strongly these are constructed.

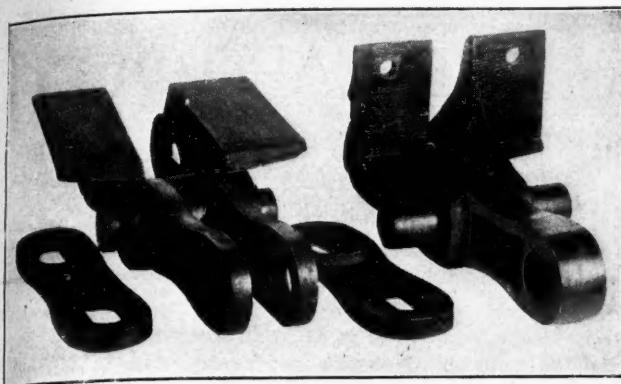


FIG. 1. MODEL OF TWO DESIGNS OF CHAIN

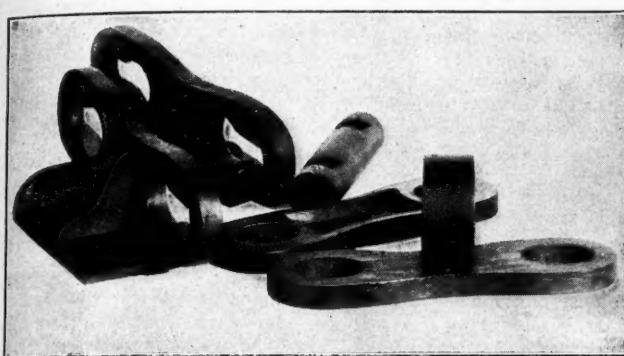


FIG. 2. ONE OF THE MODELS TAKEN DOWN

It will also be noted that the chain may be driven by ordinary single-toothed sprockets, or on the double-outside-drive principle—that is, over a double-flanged sprocket wheel, whereby the outbearings or extensions of the pin engage in depressions or pockets in the flanges or rims of the wheel. The foot wheel in such a case may be an ordinary flanged traction wheel.

The chain may be assembled by hand with the links held at any angle, no tools being required. The various links, rollers, etc., are merely held in proper position,

the steel pins inserted and shifted to the locking slots of the outer links.

When a pin becomes worn upon one bearing side, it is simply shifted to the circle of the keyhole slots without disconnecting the links, then reversed and again shifted to locking position. Thus a new wearing surface is presented, the pin giving double wear, while the chain proper is partially restored to original pitch. A notable feature not embodied in other types of rivetless chain is that the pin, being of the same diameter throughout, permits washers to be slipped thereon between the links to take up wear at the joints. The pins are of comparatively large diameter.

In another design of this chain, portrayed in modified cross-section in Fig. 4, the ends of all links are bossed to offset this wasting action. Should the bosses wear completely away, either washers may be inserted between the links to take up wear, or special pins, with the notches cut narrower than originally, may be used. Thus the ordinary life of this chain may be extended for extreme service.

Other improvements over existing types are embodied in the same general design of chain. These are all based upon constructive criticism of various types of conveyor chain employed at mine and industrial plants.

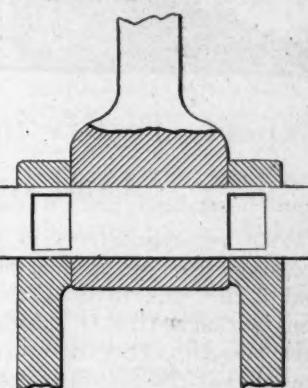


FIG. 4. MODIFIED CROSS-SECTION OF LINK

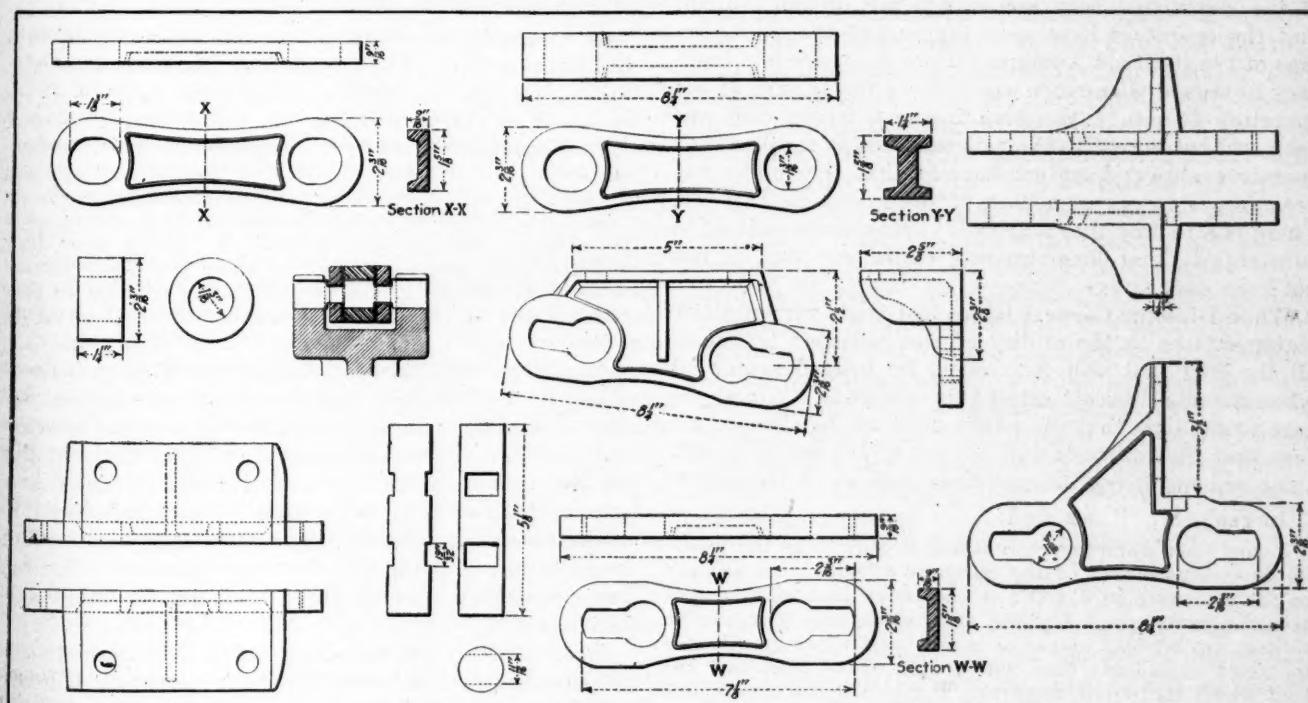


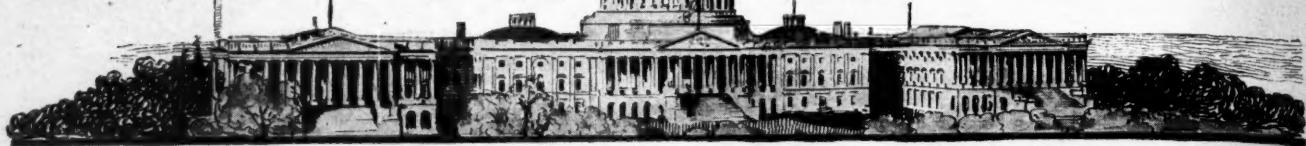
FIG. 3. CONSTRUCTION DETAILS OF A NEW FORM OF RIVETLESS CONVEYOR CHAIN

NEWS FROM

BY PAUL

THE CAPITOL

WOOTON



Experts Testify in Investigation of Coal Industry

With representatives of coal operators frankly expressing fear of the nationalization of the country's coal mines, the investigation being conducted by the Senate Committee is taking on new importance with each session. The Director General of Railroads, convinced that the coal operators are capable of taking advantage of a favorable opportunity to advance prices, testified at length before the committee. He urged the extension of the Lever Act and asked that the profits of the coal operators be probed. He declared most emphatically that the railroads would be able to handle the situation and that car supply is not an important factor in the situation at present. Francis S. Peabody, of Chicago, the former chairman of the Committee on Coal Production of the Council of National Defense, scored Mr. Hines for his reflections on the honesty of the men engaged in the coal industry and asserted absolutely that the only factor of importance interfering with coal production at this time is the failure of the Railroad Administration to furnish cars and transport them promptly.

COAL OPERATORS MAKE GOOD IMPRESSION

The committee is more than favorably impressed with the showing made by the coal operators. The members of the committee very apparently are of the opinion that the operators have not exaggerated the shortcomings of the Railroad Administration, but there is a tendency to regard with much significance the failure of the operators to cite any actual instance where coal has been sold below cost to the railroads. It is recalled that operators always have emphasized that the public has been forced to pay a portion of the railroads' fuel bill. There is a feeling that a splendid opportunity existed to substantiate that long-standing claim and that it has not been done.

While Director General Hines had made very positive statements as to the ability of the railroads to handle all the coal that will be needed, he hedged somewhat when Senator Walcott asked this question: "Would you care to say here that the public need not be alarmed for fear that the railroads will not get to the public a sufficient amount of coal to meet their necessary demands?"

In reply Mr. Hines said:

I would not want to say anything to encourage the public in the postponement of the purchase of coal. On account of the concentrated demand in the latter part of this year the transportation difficulties undoubtedly are going to be serious, but my best judgment is that we are going to be able to adopt expedients that will enable us to transport the coal which the public requires. I hope we can accomplish that purpose without going to the extreme of practically cutting off other sorts of traffic.

Mr. Hines stated in justifying his recommendation of the extraordinary remedy of the Lever Act, that the war had created new conditions. He said:

It fixes a Government price for coal which appears to be the starting point for the price after the war. It seems to bring about a closer degree of coöperation among the coal operators than ever before, a greater insistence on their part on maintaining this higher price for coal, and apparently it has brought about a greater disposition than existed before the war to concentrate on transportation difficulties as a thing to cause popular alarm.

Immediately on being put on the stand Mr. Peabody took frank issue with some of Mr. Hines' statements, as follows:

I do not like Mr. Hines' statement, which he very continuously injected into his testimony, that the coal operators are waiting for a pretext to raise prices. There is no coal operator who would not be more than satisfied with the governmental prices provided he could have continuous operating conditions at his mine. Now that the demand begins our situation is very little improved over that before the demand began. Before we had no market. Today we can get no cars.

Mr. Hines also insinuated that if later on prices should go higher the coal man would make that a pretext for breaking contracts at lower figures. What the country needs is more coöperation and less recrimination.

Mr. Hines suggests that we put the Lever Bill into effect. The Lever Bill is in effect. Why doesn't he ask the President to put it into operation again? If he thinks conditions are such that we should be regulated again by the Government, why does he not say so? I do not believe conditions are such as to justify it.

Mr. Peabody also referred to the reduction of railroad stock of coal to 8,000,000 tons. Said Mr. Peabody:

No sound, well-thinking business man would dare cut his supply of coal to a 16-day margin at the beginning of a period that looks to me as if it might be the most threatening period, and one that starts with the greatest shortage of coal that ever existed. As a result the railroads are going to be forced to confiscate the coal that should go to the public. The railroads instead of cutting down their storage should increase it so that when the heavy demand comes in the middle of the winter they can let up on their demands on the coal operators and let the coal go to the public.

Among the constructive suggestions made to the committee by Mr. Peabody was that Mr. Hines appoint coal men of long experience to act with his regional directors and to act with his administration. He declared that the necessities of the coal industry can be determined only by men of long experience in that industry. He made a plea for friendly coöperation between the Railroad Administration and the coal operators. He said the situation was such that it cannot be reached by legislation.

The operators are not profiteering, Mr. Peabody said. He called attention to the fact that in many places they could get one dollar more per ton for their coal if they were to ask it. He admitted that one reason for that

action was the fear that increases in prices would cause such a public demand as to influence Congress in favor of the nationalization of the coal mines.

John H. Sherburne, of Boston, the chairman of the state committee investigating the cost of living, testified that Massachusetts is short at this time one-third of the bituminous tonnage which should be in the state. Anthracite supplies are 25 per cent. short. These figures were thought to be fairly representative for other sections of New England. Deliveries by water, Mr. Sherburne said, are one-half of normal. His assertions in this regard were denied emphatically before the committee by representatives of the Railroad Administration, who believe that the coal supply in New England is not far from normal and that the only reason for such shortage as exists is the fact that the coal was not ordered in the spring as has been customary in previous years.

Operators generally are perfectly willing that Mr. Hines's suggestion in regard to investigating operators' profits should be acted upon. They point out that the profits in many districts have been made a part of the records of this hearing.

COMPARES THE COAL PRICES IN SEVERAL DISTRICTS

After having compiled considerable extra data concerning coal prices and car-supply conditions, J. D. A. Morrow and John Callahan, of the National Coal Association, appeared again before the Senate Investigating committee on Sept. 2. The chairman of the committee explained that the whole object of the extensive questioning is to bring out whether there is any foundation for the numerous complaints to the effect that the coal operators are taking advantage of the situation and are advancing prices arbitrarily. He called particular attention, when examining Mr. Morrow, to an anonymous advertisement which appeared in the *Chicago Tribune* of Aug. 27. The advertisement read as follows, "Coal miners present their demands Sept. 9. Strike or no strike, you face an advance on coal up to \$1 per ton after that date. England raised the price of coal \$1.50 per ton in a similar crisis. Smokeless coal (Pocahontas or Pennsylvania) is still available in limited quantities, but the time for delivery is short as cars and labor are scarce. Better buy all you can today." Mr. Morrow assured the committee that he had no idea who had inserted it.

Mr. Morrow compared the latest average prices of sales in several districts with the prices fixed by the Fuel Administration. The information as to prices was compiled with the greatest care by local coal associations for presentation at the hearing. In the Pittsburgh District there is an increase of 10c. a ton over the Fuel Administration price. In central Pennsylvania there is a decrease of 9c. a ton. In northwestern Pennsylvania there is an increase of 14c.; in eastern Ohio a decrease of 26c.; in southern Illinois an increase of 3c.; an increase in two districts in Indiana of 8c.; and in the Harlan Field an increase of 48c.; an increase in smokeless of 11c.; an increase in northern Pennsylvania of 25c.

While on the stand, Mr. Morrow found occasion to call attention to an error on the part of the Director General of the United States Employment Service in his recent statement to the effect that there are 1,000,000 men employed in coal mines. The number should be, in Mr. Morrow's opinion, 550,000. "I want to make it

clear," said Mr. Morrow, "that from information we have the shortage of men at coal mines is more acute in those fields that are nearer the great industrial districts. The shortage of labor at the mines is spotted." He presented actual figures of the shortage in a number of districts.

Mr. Callahan gave additional information with regard to the car situation. One of the practices of the railroads, he pointed out, which is a factor in keeping open-top cars out of service, is the use of such cars by the railroads to store slag and railroad coal when it is inconvenient to dump or transport these commodities from the point of loading.

Much to the surprise of the committee, the hearing developed that the Geological Survey, because of the refusal of Congress to appropriate the money, had been forced to suspend the collection of statistics as to the amount of coal consumed and to the amount in storage. It also was brought out that even the weekly statistical statement being furnished by the Geological Survey is being got out by funds furnished by the National Coal Association. It was shown that without such data it is impossible to make an accurate estimate of fuel requirements for the current year. The estimate of 500,000,000 tons, it was pointed out, is based on an estimate made by Dr. Garfield about the time that he severed his active connection with the Fuel Administration.

A striking feature of the hearing was the reply of Mr. Morrow to the following statement made by Chairman Frelinghuysen: "I would like to see a situation where we could produce enough coal, not only for ourselves, but let our Allies have as much as they need." Mr. Morrow's reply was: "If we can get the cars at the mines, and if they can be moved, we can produce all the coal that this country will need and still have a large surplus for our Allies."

AMERICA COULD SECURE FOREIGN COAL BUSINESS

On Sept. 3 H. Y. Saint, head of the export coal department of the Shipping Board, appeared before the committee. He stated that the Shipping Board has 929,684 tons of shipping engaged in carrying coal to foreign countries. He said that 100,000 additional tons are about to be allocated to take care of the Italian situation. He told the committee that the time is most opportune to extend our sale of coal to foreign countries. By making time contracts abroad he believes that the United States can secure permanently a considerable portion of the coal business which before the war was done by England. He declared that England had made an effort to take care of former customers in South America, but that she had been practically unable to do it and that South America today is being supplied almost entirely with American coal, although much of it is being carried in foreign ships. Mr. Saint asserted that the shortage of coal abroad this year had been estimated by the Shipping Board to be 62,463,000 tons for the calendar year.

Correction

A correspondent calls our attention to the fact that in our issue of Sept. 4 the address of the Hamilton Manufacturing Co. is given on page 404 as Hamilton, Ohio. It should be 310 Schulz Building, Columbus, Ohio.

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Six Months of Truce

THE exhibit of conscience, boldness, and clear vision in the report of the committee on high cost of living to the New York State Federation of Labor entitles it to a place on the foreword page of this issue. It is the foremost work of the present month. If it is duly heeded, the ills of our idleness since the eleventh day of the eleventh month of last year will be rapidly mended. All the losses of production resulting from lack of faith in the future and from strikes and slackening will be corrected, and prices may come down.

Quite rightly the report leaves a loophole for the oppressed. Some of those whose wages have not been raised since the war began, or whose wage scale has been revised in a wholly inadequate manner, may, without even a strike, have their plight relieved. If that is done quite generally there will be a tendency of prices to rise, but that rise will be balanced by their disposition to fall as a result of the great production that steadily working labor will provide.

The proposition to do a ten-hour day's work in eight hours and the implied purpose not to ask for a shortening of hours are alike gratifying. Labor has boasted that the shorter day was as efficacious as the longer day of our forefathers. The committee would have the New York workingman prove this to be true. Though the state and national federations have not accepted the report, its publication has done not a little already to encourage the moderate majority in the labor ranks and to call a halt to that radical minority which seeks too often not merely more pay but anarchy.

No one but visionaries believed that prices would come down after the war, excepting, however, a somewhat numerous body of deluded men who believed that the end of the war would see wages cut squarely in half.

The Valley of a Thousand Smokes

A VALLEY in which there are many mines much resembles the valley of Katmai, in Alaska, with its thousand smokes. Seen on a foggy morning, the ascending fumes from the many fires in some valleys seem to number no less than one thousand.

There is the fire alongside the boiler house, where half-burned and half-quenched ashes have been dumped and have caught fire to smolder for weeks and months. There is the old bone pile, which has been fired by some tramp who has sought to cook stolen chicken and a few ears of corn by the light of the moon.

The slate dump, barren of coal as it frequently is, often is rich in oil shale. It also perhaps has been set on fire by the smudge ignited by a rock dumper, who sought its genial glow some winter's day, or tried, in

the summer, to subdue the plague of gnats. Or the fire has come from the blacksmith's clinkers, thrown out into the loose rock crevices while still red hot. Or, again, the woods may have been fired and the fire encroached on the rock dump. The number of calories in a harmless looking dump of black or even grey shale, and the months it will burn, would be a marvel did we give it a thought.

Then, again, a waste washery dump, or the coal that fell below what is now a disused and decaying tipple, may be burning. The many steel stacks of the boiler house are belching out the blackest of black smoke, which mingles unpleasantly with the fine steam spray from the exhaust of the engine. Then, again, if there are coke ovens, their efforts to blacken the air are even more successful in that task than any of the other agencies.

Most of the offensive smokes have their appropriate cure. The ashes from the boiler house may be efficiently quenched or washed away by a flood of water. A better way is to dump these ashes into a motor truck, and use them for road material, while the most effective of all would be to completely burn out the combustible matter from the fuel before rejecting the ashes. Bone coal may be similarly disposed of. As for the slate dump, at most mines it is too large to distribute. Only where the coal is thick is the rock brought to the surface so small in quantity that it can be wholly used for grading purposes. At every mine with proper equipment for handling it, however, much more mine rock could be utilized.

Washery waste is also obtained in too great bulk for distribution, but the woods can be cleared off around the fringe of such accumulations; the blacksmith can be warned to quench his cinders; the greaser can be told to see that the fire with which he thaws out the oil does not spread over the oil-soaked shales; and the dumper can be supplied, as indeed he should be for other reasons, with a cannon-ball stove wherewith to warm himself in winter and to protect his face and hands from insects in summer, and as for the boiler smoke, it may be said that there is no saving in inefficient boiler equipment. The cure for smoke of this kind is perfect, or at least near-perfect, combustion.

All of these cures ignore the problem of coke-oven smoke, and rightly so, because the beehive oven is being fast ignored by everyone. Its ill behavior, like that of the old-fashioned boiler, has not the excuse of profit or advantage. The old types of ovens must pass with the days. The byproduct retort is none too clean, but it is better than the beehive or the Belgian oven; and surely, in time, its smokiness will be wholly eliminated.

But whatever cause may be behind each of the thousand smokes, let them all be slowly and surely suppressed that our mining communities may be as cleanly as knowledge and skill can make them. Our towns are getting dirtier rather than cleaner, with their larger output and growing use of steam power. They are apt to be less lovely, year by year. Let us try to exorcise the genii of dirt which our methods of operation have unloosed.

Smoke has often been used to typify industry, prosperity and creation, but symbolic as it is of the good, with equal aptness it may be expressive of squalor and discomfort. A little thought, labor and expense devoted to the suppression of smoke will give transforming nature a welcome opportunity to do her perfect work.

Size of Safety as an Industrial Issue

IN THE 19 months of our war with Germany 50,150 men in the American forces were killed in battle or died of wounds received in action. The nation has been stirred about that human sacrifice as perhaps it never was stirred before. We have exercised ourselves over the compensation of the bereaved and of the injured, over life insurance of the soldier and the reconstruction of our mutilated warriors. Our interest in the war losses has been too small rather than too great, but we have given to these losses more attention than we have expended on an evil equally important.

In that same 19 months, in peaceful America, 126,000 men and women were killed or died of wounds, of whom two-thirds were killed in accidents that occurred outside of what we know as industrial plants. It is clear that the safety problem is a large one, overshadowing even our great war problems. If all we could do with it was to deliberate about it, it might be just as well to let it remain undiscussed. But all who are putting safety practices to the test are finding that they certainly save life and limb.

Luckily men are rarely killed without some opportunity for accident being supplied them. The victim contributes only in a degree to the accident. We have been in the unfortunate habit of saying that the killed or injured is to blame if he contributed only 10 per cent., and that he is inexcusably to blame if his contribution was as much as 90 per cent. Thus a man falls into an open ditch and it has been quite generally the rule to find some excuse such as the fact that he had passed that point several times before and so should have known better. Or again, if he had been watching or thinking about what he was doing, he would not have overlooked the presence of the ditch, or perhaps that it was not on the road by which he was supposed to travel. Again we have said that it would certainly have been visible had his light been burning brilliantly or that he had been warned and that there was a danger sign nearby to protect him. And so we went on, finding palliations for the uncomfortable truth that the ditch was not covered. The victim clearly was forgetful, careless, stone blind, stupid, disobedient, neglectful—but it cannot be forgotten that he could have been all these and yet safe, if the open ditch had received the appropriate covering.

The American Rolling Mill Co., at Middleton, Ohio, reduced its compensation per 100 men employed from \$412.76 in the first five months of 1918 to \$38.29 in the same five months of 1919, a fall of 91.9 per cent. The total number of accidents involving lost time during the same period dropped from 4.2 to 2.3 per 100 men, a decrease of 46 per cent. The number of days lost from accident declined per 100 men from 50.4 to 24.8, a fall of 51 per cent. Clearly then, "safety work" is worthy of its name, for it certainly does save lives and prevent accidents. It also reduces compensation costs, and the company which fails to keep in touch with the developments of the campaigns for safer mines and factories, which the National Safety Council and kindred organizations are fostering and inaugurating, is letting an important aid in safety and life and health economy be overlooked.

Some of their work is inspirational solely, but who can afford to overlook the driving force of safety—inspiration—the very steam of accident prevention? Enthusiasm is more important to safety than the

mechanisms of accident prophylaxis. Still the mechanism must be there if you would let in the steam, or nothing will be achieved. Too many have preached safety and left ditches uncovered, roads without safety holes, stairways unsheltered and machinery unguarded, and wondered why steam alone could not do the work.

Col. Arthur Woods, assistant to the Secretary of War, who is conducting a nation-wide drive for reemployment of service men, stated on Aug. 25 that to date 1700 officers and ex-officers of the American Army, a greater portion of whom have seen service abroad, have registered with the department as applicants for positions. If you are looking for managers, superintendents or engineers, where can they be more fittingly obtained than from the American Expeditionary Force?

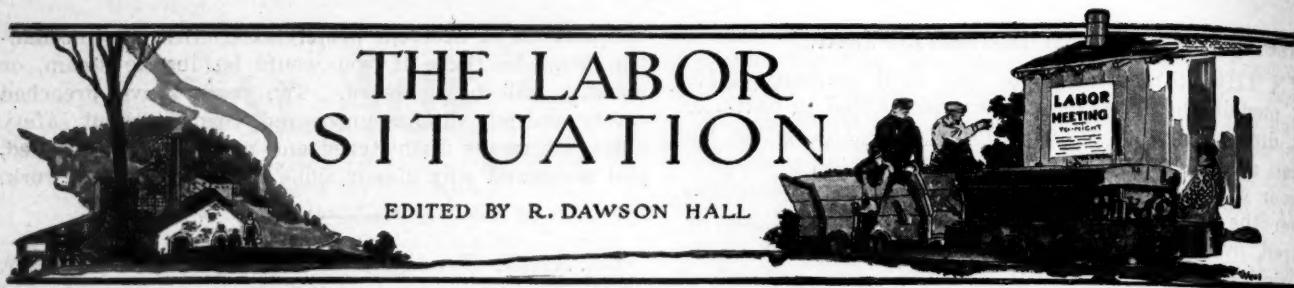
Some Inequities in High Wages

ANYTHING constructed before the war is worth its replacement cost less depreciation and obsolescence. Consequently, factories and the machinery in them are worth, let us say, quite roughly, 70 per cent. more in dollars than they were before the war. These factories are mostly owned by companies which, quite usually, have a large issue of bonds and of preferred stock which pay a limited percentage. Consequently, all the appreciation in value goes to the limited amount of common stock outstanding.

The values of common stocks are therefore bound to go up to levels not known before. If, by undue fear of a charge of profiteering, no advantage is taken of the increased replacement value, then no one paying the present prices of labor will find it profitable to build the new factories or buy the new machinery required. However, it must be said that as far as factories are concerned, most companies have already anticipated their needs for many years during the progress of the late war, and only the cost of adjustment to peace conditions has to be met.

Railroads would show the same advance in value if freed from the practical ownership of the Government and from Government control. If the nation does not allow railroads to make earnings on the basis of the cost of replacement, there will be few betterments and enlargements of service such as electrification. New extensions into noncompetitive territory might be made if rates on such new work were made larger than are granted to traffic along the old lines, but such extensions will not make up for, but only render more trying, the fact that there will be no development at all where old railroads already provide inadequate transportation. The same considerations apply to electric traction lines.

If an undue desire is shown by the public for its own protection, there will be no initiative shown by any corporation. We shall stew in our own juice. If capital invested before the war is not allowed to raise earnings on the basis of replacement values, the nation will stand stockstill. Labor, by being over-reaching, will have checkmated itself. It will have suppressed the progress on which its future depends, unless it is willing that some individuals who have taken all the risks of business earn two depreciated dollars in place of one good one; and others who are fortunate enough to have bonded indebtedness receive three, four and five of the new and shrunken dollars in place of the good ones they expended.



General Labor Review

Rarely ever have labor affairs in the coal-mining fields been more stirring than today. Two processions of mine workers have been touring the coal fields trying to bring out the men who are working. Both processions are in violation of the orders of the union and one is being conducted more in anger at the United Mine Workers of America than at the coal operators while the other is of men who are not complaining about their own working conditions or wage scales, but who are faring forth to compass the unionization of the men in another district.

It is a bad condition of affairs for the union leaders. The mine workers are insurgent at the very moment when their representatives and counsellors are called to meet in convention. The meeting may have to be called off while the leaders go back home to keep their following from getting into serious trouble. In the anthracite field the Hudson Coal Co. mine workers are all out on strike and the Missouri and Kansas mine workers are having extensive suspensions. On Tuesday, Sept. 9, the convention of the United Mine Workers of America met in Gray's Armory, Cleveland, Ohio, to formulate a wage scale which is to come into effect, if what they ask is granted, on Nov. 1. The plan seems to be to have a nation-wide strike to cover all the unionized area, if the terms proposed are not met, except the New River and Kanawha fields, which have a contract that forbids a strike. The only other working sections will be the Connellsville region and its surroundings and the Pocahontas and Thacker fields. No one knows but what these exceptions will fail when the time comes.

At the convention William Green, international secretary-treasurer, announced that the treasury had never in its history found itself bulging with more money. The balance on July 31 was \$1,728,906.12. The paid up membership for July, 1919, was 409,392 with 43,648 men exonerated, a total of 453,040 or \$3.82 per capita. Should a strike come it might be necessary to take on many more men for some nonunion workers would find themselves in destitute circumstances and it would be obligatory to pay them strike pay so as to strengthen the union against the possibility of these men returning to work.

This international fund, as can easily be calculated, could pay every underground day laborer for just 6 hours of labor according to the present wage scale. According to the projected wage, a 60-per-cent. increase and a 6-hour day, it would cover the earnings for from 3 to 4 hours, being much nearer the shorter period of time.

Still the bulk of the funds of the union are by no means international. Most of the districts have funds of their own which in proportion to membership are somewhat more plethoric. Four years ago, said Mr. Green, the International Union owed \$877,860, which had been borrowed

from the various district funds, for supplying food and clothing to the members of the union and their families when the mine workers were on strike in Colorado and eastern Ohio. Since then all this money and \$200,000 lent by the Illinois district to that of Ohio has been paid by the international union.

He ascribed the better financial condition to the increase in the per-capita tax, at the last international convention, from 25c. to 50c. per month per member. The union has \$57,581.35 in the Louisville Bank, Louisville, Col., the Lafayette Bank, Lafayette, Col., and the Erie Bank, Erie, Col., while District No. 12 has a total of \$50,000 in the three banks named and in the Interstate Bank of Denver, Col. District No. 27, Montana, has \$8000 in the last-named bank. For the \$58,000 deposited the international fund gave its pledge to the district unions promising to repay the money if the unions failed to get the money from the banks. These sums of money were loaned to the American Fuel Co., who agreed to employ only union labor, and the districts agreed that they would not hold the banks responsible unless the fuel company repaid the banks the money that had been lent to it. Three of the banks, those at Louisville, Lafayette and Erie, became insolvent and the court has refused to order the money repaid to the district treasuries. Of course, the \$57,581.35 will be only in part recovered. Thus \$115,581.35 is not now available.

Mr. Green stated that he sent a questionnaire, relating to the number of union men in the United States forces and the number of men killed and wounded, to all the local unions, 3237 in all. Answers were obtained from 2372. These incomplete reports show that 53,812 members of the union left the mines to engage in the military and naval services of the union or an average of 16 to each local union. Of these 3033 were killed or died of disease.

Local unions of the United Mine Workers purchased, as far as ascertained, \$5,433,170.25 of Liberty Loan Bonds and \$1,418,828.32 of War Savings Stamps. The International Union and the affiliated district organizations purchased \$2,954,050 and \$6993 of War Savings Stamps. This makes a grand total of \$8,387,220.25 of bonds and \$1,425,828.32 of War Saving Stamps.

These figures do not include the bonds and War Savings Stamps purchased by individuals who were and are members of the organization nor do the figures include the amount of Victory Loan Bonds purchased by districts, sub-districts or local organizations.

It does not include either the patriotic efforts of District 18—the only Canadian district in existence during the progress of the war. In this section 266 union members served. 88 men being killed or dying of disease. They purchased \$26,743 in Canadian bonds and the International Union bought \$100,000. This, Mr. Green adds, is a remarkable showing for the local unions as in District No. 18 they number only 42.



STRIKES IN GERMANY MAKE COAL SHORTAGE
German people with hand carts besieging the freight station for a modicum of coal.

The report of Acting-President John L. Lewis was largely a review of facts already published, but it may be stated that legislative action was recommended in the matter of the menace to the mine worker of cheap Mexican fuel oil.

The Hudson Coal Co.'s men have found or advanced so many causes of complaint that it is hard to know on what basis the present strike started. It was doubtless the fore-ordained outcome of countless irritations and of the character of the Hudson Coal Co.'s employees. The trouble which was the immediate cause of the suspension was the use of the mechanical coal loader at Powderly colliery in Carbondale. On Friday, Aug. 29, the 1500 men of the Powderly and No. 1 collieries in Carbondale and the 800 men of the Jermyn colliery went on strike.

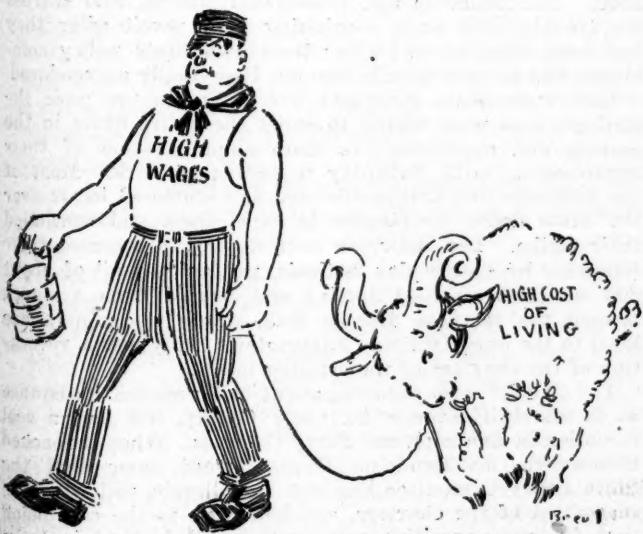
On the Tuesday following they voted to call on the general grievance committee of the Hudson Coal Co. to declare a general strike of all the employees of the company from Plymouth to Forest City. The committee was to hold a meeting Friday, Sept. 5, and it was asked to take the action requested provided the mechanical loader was not removed by that time. The men decided that if the grievance committee failed to act as requested they would go back to work and thresh out the matter later.

It is alleged that the company on Wednesday, Sept. 3, laid off all the engineers, pumpmen, firemen and like employees about the Powderly, Coalbrook and Wilson Creek collieries. The places of these men were taken by mine foremen, breaker bosses, mine clerks and other lower officials. On Sept. 5 the grievance committee had a meeting with the Hudson Coal Co. officials without securing concessions and ordered a general suspension at all the mines of the company in the Lackawanna and Wyoming valleys.

On Sept. 8 it was reported that 30 mining plants were idle, there being 20,000 employees refraining from work. Apparently there has been another cause for disagreement. Some roof fell in the Archbald mine, and the men, refusing to remove it at laborers' wages, were discharged. They demanded the consideration rate of pay. Each mine combines its protest to that against the mechanical loader. Thus Wilson Creek presents a protest against what it terms excessive dockage.

It is feared that as a result of a vote on Sept. 8, the result of which was not known on going to press, another 20,000 men will join the strike. On Sept. 8 six mines of the Hudson company in the Wyoming valley were still working with decreased forces but 10 others in that same section were idle.

The strike is regarded by the company and the union alike as an unauthorized suspension. It is a violation of the contract. Jack Dempsey, the district president, is returning from Cleveland to try to end the strike which the grievance committee has called largely to prove the strength of the insurgent forces in District No. 1.



EVERWHERE HIGH WAGES WENT THE RAM WAS SURE TO GO



HOW UNCLE SAM'S NEW DOUBLE-ACTING HAMMER GETS THE UNIFORMED AND SALARIED MAN

One thousand men employed at Nottingham No. 15 colliery of the Lehigh and Wilkes-Barre Coal Co. at Plymouth went out on strike during the past week because of a refusal of an acting inside mine foreman to listen to their grievances. The men say that the acting inside foreman took the company men from their regular work and put them at objectionable labor. The men took their grievance to the acting foreman but they say he ignored their request to leave the company men at their usual occupations.

In western Pennsylvania the mine workers are far more peaceful than in other parts of the country. There is, however, at least one strike. The Allegheny Coal and Coke Co. has not yet acknowledged the union, and the strike at that mine continues. President Wilson on Aug. 30 directed Secretary of Labor Wilson to send an investigator to Breckenridge, Penn., to probe the killing of Mrs. Fannie Sellins and of the man who was killed at the same time.

The increase in the rate of pay became effective on Sept. 1, and while the public was not informed as to the percentage of increase it is said to have been of a substantial nature and sufficient to equalize the wages with those paid in other districts. The resolution authorizing the increase recited that such action was taken in order to assist employees in meeting increased living costs.

In West Virginia the troubles have amounted to open civil war, but before narrating them it is necessary to go back to recent events. Following the increase in wage in the Pocahontas and Thacker, or Williamson, fields, already related, the Winding Gulf Operators' Association decided upon an increase in the wages of their employees, the advance applying to practically all mines in the field.

The advance in wage of the Kenova-Thacker, or Williamson, field is arranged to cover the Pond Creek field also. The operators' association of the Williamson field met at Williamson, Aug. 21, and again canvassed the situation, confirming the tentative action of Aug. 14. All employees will participate in the wage readjustment, the salaried men and company men; in fact, all classes of employees.

All these wage increases would seem to promise a short respite in the labor disputes, but unfortunately this is not so. On Saturday morning, Sept. 6, the miners at the larger operations on the Kanawha & Michigan R.R. on the north side of the Kanawha River as well as on Coal River not only refused to work but many of them, or at least so many of them as were armed, started from various points, having in view an invasion of the Guyan Valley. The miners from Cabin Creek and other points east of Charleston reached Peytona in Boone County at noon and started toward Danville, another point in the same county. Another gang had Clothier in Logan County as its objective, a number of the miners in the vicinity of Clothier, including six of the Boone County Coal Corporation plants, having taken part in a strike of the mine workers.

As soon as Governor Cornwell learned that the miners had started on their march toward the Logan County line he called in F. C. Keeney, president of District 17, and showed to him a copy of a telegram he had supplied to Secretary Baker inquiring if federal troops would be sent if it became necessary to send for them. Placing a copy of that telegram in Keeney's hands he instructed him not only in his official capacity as president of the United Mine Workers but as the personal representative of the Governor to meet the Kanawha miners before they reached Boone County and to tell them that unless they abandoned their intention of invading Logan County he would call on the federal troops. The Governor made Madison, the county seat of Boone County, the deadline and that line the marchers never passed. If they had, he would have requested two regiments of federal soldiers.

Keeney intercepted approximately 1,000 miners before they reached Danville and prevailed upon them to camp at that place over night, informing Governor Cornwell that the men would proceed no further. Sunday morning the miners in camp at Danville voted to return to their homes.

Miners further up Coal River, however, more radically inclined, were busy Sunday morning organizing a meeting for Sunday afternoon at which it was proposed to determine upon the future course of action with reference to the invasion of the Logan field. As soon as Governor Cornwell learned of the proposed meeting he directed President Keeney to go to Clothier and tell the miners there that the meeting must not be held and that if it were he would feel under the necessity of asking for federal troops.

In the meantime the Governor had directed Chesapeake & Ohio Ry. officials at Huntington to make up a special train for the purpose of bringing the striking miners back to their homes on Cabin Creek and elsewhere. Three special trains were made up without delay and the first one was ready to leave Clothier at 12:30. It did not leave there until nearly 4 o'clock, waiting for the adjournment of the meeting of the miners, which was late in being convened, as the arrival of President Keeney had to be awaited. When that official arrived he took charge of the assemblage.

A resolution was offered that the Governor be allowed 15 days in which to aid the Kanawha miners in organizing the Logan field. The president refused to entertain the motion as well as other radical motions, and in fact to entertain any motion except to adjourn, which was put and carried. Immediately following adjournment, 500 miners boarded the special train.

At 6 o'clock the same train picked up about 1,000 miners at Danville, part of whom were sent to their respective homes up Big Coal River on another special, the main body of strikers passing through Charleston before nine o'clock en route to Cabin Creek and other points east of Charleston, ending what had proved to be a serious situation bordering on civil war and which would have ended in civil war itself but for the firmness of the action of the Governor of the State. He made it quite plain that he proposed to meet force with force if after having made a vain appeal to them they did not desist from the folly they had proposed.

On Monday morning most of the miners in the Kanawha field had returned to work, for the time being at least, some of the more radical among them still threatening that they would yet invade the Guyan Valley, unless they were per-

mitted to organize the Guyan field mines, either forcibly or peaceably.

Late Saturday night, Sept. 6, in response to certain inquiries, Governor Cornwell issued the following statement: "Frank Keeney, president of the United Mine Workers of this district, left here at noon to-day for Coal River to head off the men who marched across from Marmet. He went at my request and as my representative as well as in his official capacity as president of the United Mine Workers. Before he left I told him I had appealed to the marchers personally, had reasoned with and warned them, that if they now persisted in invading the Logan field they would do so at their peril, and I showed him a wire I had sent Secretary Baker preparatory to a request for two regiments of federal soldiers. I authorized him to tell the men what my next step would be.

"I later talked with Secretary Baker and communicated with General Leonard Wood, commander of this military district, and all was in readiness to move two regiments of regular troops into the area threatened. For five hours I have held on my desk the telegram requesting their movement. I have just talked to Keeney, who was at Danville, Boone County. He advises that the main body of men, 1500 in number, are in camp there, and gives me absolute assurance that they will go no further, but arrangements will be made to bring them out on a special train tomorrow.

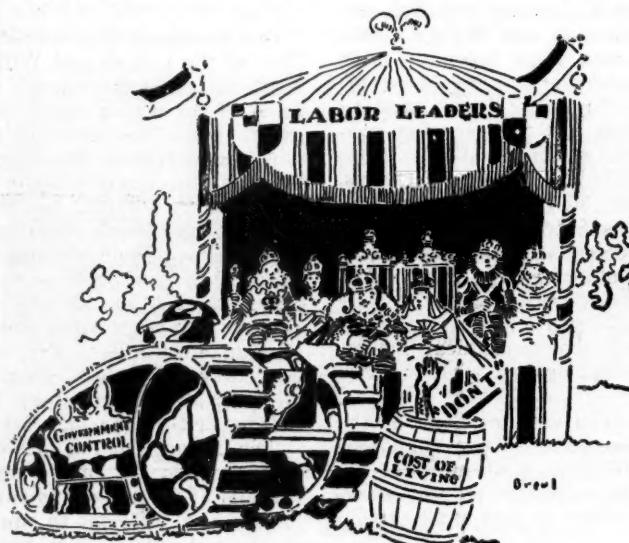
"He left there immediately after the conversation to head off another party of men some 12 miles above Danville, but I am accepting his assurance in good faith and will not order the troops unless there should be another outbreak, which I do not have any reason to fear. I believe that the men will all be back at work Monday, regretful that they have been imposed upon and ready to help discover and punish those responsible for the wild stories that aroused them."

On Sept. 8 most of the men were back at work except about 25 per cent who were resting up after their march.

In Illinois the rebellion of radical members of the United Mine Workers has about been stamped out by the revocation of the charters of 24 locals with a membership of 5500. The Belleville and Collingsville miners, who started the trouble, died hard, continuing their revolt after they had been expelled and after their own State policy committee had advised submission, but they finally surrendered.

Last week State President Frank Farrington gave the strikers, who were trying to enlist the entire State in the mutiny and overthrow the state administration of their organization, until Saturday to return to work. Most of the Belleville and Collingsville men and scattered locals over the State defied Farrington to expel them and continued their strike. The Belleville men, hoping to increase their following by spectacular methods, put an "army" of about 200 men into the field Sunday and started it on a march toward the southern Illinois field, where the miners are loyal to the organization. Farrington's reply was a revocation of the charters of the striking locals.

The "army" met encouragement and received assistance as it marched through St. Clair County, but had a cool reception in Randolph and Perry Counties. When it reached Coulterville, in Randolph County, word came that the State Policy Committee had met at Gillespie, following the revocation of the charters, and had come to the conclusion that further opposition was useless and had advised the strikers to return to work. This news caused about half of the army, which had been swelled to 350 men, to turn back.



ROYAL SPORT OF BARREL BUSTING
LABOR (victim in the tub): Turn aside. What's in the barrel is mostly ME



DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

Child Labor in Mines

Letter No. 1—Referring to the child-labor question, I quite agree with the opinion expressed by the editor *Coal Age*, July 3, p. 24, who regards it as "unfortunate for the country at large that a difference should be made between the age at which children can be employed in factories and mines." The reference, here, is to a bill before the Illinois legislature imposing a tax of \$2 on children under 14 years of age employed in factories, and under 16 years of age when employed in mines or quarries.

While I am a great believer in the education of children, there are many things to be considered if we would be fair to the parents who rear them. Incidentally, I fail to see the reason for the distinction that the Illinois law makes between boys employed in factories and in mines, the age limit being 14 years in the former case and 16 years in the latter.

Like many other miners of my age, I entered the mines for work (Apr. 2, 1891) two months and twelve days short of 10 years of age. While I believe that this is too young for boys to start to work, I am fully convinced that all boys should know what it is to do a fair day's work, before they reach 16 years of age. The reason why I started so young was that I had a natural dislike for books.

My father, thinking to change my mind and give me a desire to go to school, took me with him into the mine. The result was, however, the opposite of what my father intended. There were many other boys of my age in the same mine, although the law prescribed an age limit of 12 years; but it is needless to say that this portion of the law was not enforced then as it is today.

THE BOY, THE SCHOOL AND THE FATHER

Speaking of boys, there are two classes. First, the boys that have a desire to go to school and get all the education they can. Second, there are the boys who have a strong dislike for study and would far rather go to work than to attend school. Now, while every encouragement should be given to boys of the first class to permit them to get the education they want, it would be a waste of time to force boys of the second class through the same course of study. As we all know, the world is made up of different kinds of people; some are students and it is natural for them to study out a problem; but it is just as natural for others to work out the same problem in practice. Boys of the latter class often develop into self-made men.

In regard to the father of the family, there are four conditions of life: (1) The man who is able and has the desire to educate his children. (2) The man who is able but has no such inclination. (3) The man who, though desiring to educate his children, has not the means to carry out that purpose. (4) The man who

neither has the desire nor the means to educate his children.

Child-labor laws apply more particularly to the indifferent class of parents and children, the aim being to make education compulsory, to the end that every man and woman shall possess at least a common-school education. Personally, I have nothing but contempt for a parent who is indifferent to the education of his children; but I have always been taught the maxim, "Of two evils choose the least." In line with this maxim, let me say that where a father needs the help of his boy at the age of 14, there should be a provision in the law that would enable him to put his boy to work; and this would often prove more beneficial to the boy as well as to the family.

Finally, then, while favoring the age limit of 16 years for boys in mines, I feel that many working men, particularly those of the laboring classes, have not the means to support their families without the help of their boys between the ages of 14 and 16 years. In any case, I can see no reason why boys under the age limit should not be permitted to work both in factories and in mines, during the months when schools are closed or what is termed the "vacation months" of the year.

Wilkinsburg, Penn.

A. A. ALLEN.

Problem In Coal Extraction

Letter No. 2—The problem presented in *Coal Age*, Aug. 7, p. 234, regarding the extraction of coal from a seam whose thickness varies from $8\frac{1}{2}$ to 11 ft. and which lies at a depth ranging from 450 to 600 ft., is an interesting one. It is there stated that the top and bottom layers of the seam are hard coal, while the middle layer is softer and rashes easily.

The proposition presents many difficulties, some of which are met and overcome by the methods adopted. One of these difficulties, for example, is the nature of the "siliceous shale" that disintegrates readily when exposed to the air and which has been overcome by leaving up the top coal, in the first mining. This plan should certainly be carried out in all future operations, as the top coal thus left can be readily recovered in the robbing.

Another difficulty arising from the cleavage planes that exist in the top coal and overlying shale and extend approximately north and south, has been overcome by driving the rooms east and west, which avoids the risk of roof falls that would prove dangerous in the rooms.

After a close study of the conditions described in this article, it appears to me that the chief problem presented is one of insufficient pillar support during the first working when the width of pillars should be such as to give the strength required to carry the overburden and yet allow of the rapid extraction of the pillars in the work of robbing.

The statement is made that a modified panel system is used; by driving cross-entries off the main headings, at a distance of 1565 ft. apart. The room headings are said to be turned off the cross-entries far enough apart to leave a block of coal 520 ft. wide, which is worked out by rooms driven on 45-ft. centers.

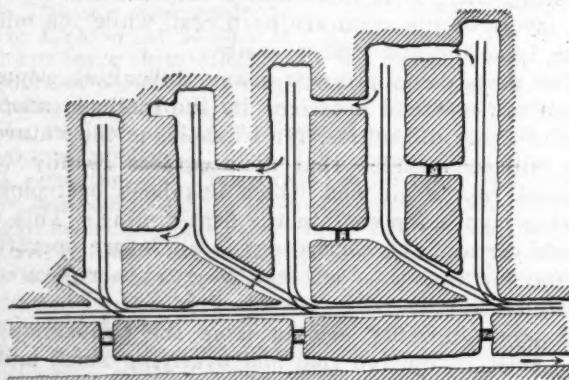
The rooms are necked 18 ft. wide to avoid yardage and are driven the first 100 ft. at a width of from 18 to 21 ft., after which they are widened to 28 or 30 ft. Seemingly in contradiction of his first statement, the writer adds, "All the rooms on a panel are started at the same time, when the entry is finished, and are widened to the full width of 24 ft., in four machine cuts." I assume, however, that this last statement is in error and that the rooms were driven 30 ft. in width, as first described.

CONDITIONS MUST BE STUDIED ON THE GROUND

Before making suggestions of improving the present plan of mining, let me say that it is seldom possible to sit in an office and decide questions of this kind from the data presented in an article. There are always details and indications that the practical man on the job can interpret and which, many times, will completely alter a plan suggested by someone who is not entirely familiar with the actual conditions existing in the mine, but who must judge from the facts as they are narrated. I am, therefore, presenting a possible solution of this problem with the full knowledge that if I had an opportunity to go to the mine in question, my suggestions would be materially altered.

According to the data given, the total distance that the rooms must be driven is 260 ft., or half the distance between the room headings. For 100 ft. the rooms are driven at a width of 18 to 21 ft. Then, for the remaining 160 ft., I assume that they are widened to 30 ft., which leaves but 15 ft. of pillars between them, for that distance. Under these conditions, I wonder that the amount of coal recovered reaches even 50 per cent.

Instead of this arrangement, allow me to suggest driving the rooms on 60-ft. centers, 24 ft. wide, after



OPENING TWO ROOMS OFF A SINGLE NECK

necking is completed. If it would cause no labor trouble, my preference would be 75 ft. centers with rooms 30 ft. wide, opening two rooms off one neck, as shown in the accompanying sketch. This would, of course, mean longer crosscuts between the rooms and there is a possibility of labor troubles growing out of the plan. That can probably be avoided, however, by driving all cross-cuts 18 ft. in width, the same as the roomnecks, which should meet with no objection.

If a greater extraction of the coal can be secured it might be possible to increase the rates, allowing it would not disturb existing agreements in the district, regarding which I am not familiar. It appears to me, however, that an increase of rates would not be necessary, as the suggestion I have made would give to each miner a wider face and a better chance to increase his daily output of coal.

The present system of paneling seems to me to be all right. If the room centers are to be increased as I have suggested, it would be necessary either to increase the distance between the cross-entries or to drive a less number of rooms. This is a question that must be decided on the ground, however, as it depends entirely on the number of rooms that can be undercut in a shift.

Let me say, in closing, that it is quite doubtful, in my mind, whether rooms can be driven at a width of 30 ft. under the conditions named. I would fear the occurrence of local falls, possible squeezes and the heaving of the bottom, which is described as fireclay varying from a few inches to several feet in thickness. On this account, I would prefer the first plan mentioned of driving the rooms on 60-ft. centers and 24 ft. wide, which I believe would enable a much larger extraction of coal.

SUPERINTENDENT.

Scranton, Penn.

Letter No. 3—Referring to the article published in *Coal Age*, Aug. 7, p. 234, describing and illustrating a method of extracting coal in a certain mine, where only about 50 per cent. of the coal was recovered, allow me to say that this is certainly a great loss and one that should be avoided, if possible.

It seems to me that a change of system that will provide larger pillars, would make it possible to prevent such a terrible waste of coal in mining. Attention is frequently called to the need of conserving all natural resources, particularly coal, and that every effort should be made to do this at the present time is of the utmost importance.

GREATER WIDTH OF ROOM PILLARS REQUIRED FOR THIS DEPTH AND THICKNESS OF COAL

In the first place, judging from the description of the conditions governing the extraction of coal in this mine, it seems to me that the pillars are quite too small for the height of seam and depth of cover, it being stated that the coal ranges from 8½ to 11 ft. in thickness and is overlaid with from 450 to 600 ft. of cover, a depth that should call for a far greater width of pillar than is shown to be possible from the data given in the article.

The 15-ft. pillars left between the rooms, in this case, might be well enough in a 4-ft. seam, under ordinary conditions. But, it must be remembered that the higher the coal the thicker must be the pillar and the greater the diameter of the posts required for its support. For example, while a 4-in. post is commonly used in a 4-ft. seam, we all know that a greater diameter is required when posting a 10-ft. seam, at the same depth. Naturally, the same rule applies in determining the size of pillars required when working seams of varying thickness, under the same cover.

Again, I would suggest turning the rooms 12 ft. wide, instead of 18 ft., even at the expense of yardage, and this width should be maintained until the point has

been reached where it would be safe to widen out to the full width of the room. The length of the roomnecks should always be such as to leave good entry stumps for the protection of the entry. I would recommend driving these rooms 25 ft. wide, on 60-ft. centers, so as to leave 35-ft. pillars between them.

In drawing back the pillars, it would be my plan when the rooms have been driven up, to break them all through on an even line at the face, and take special care to keep the pillarwork on a straight line so that no undue pressure or weight will come on any one or more of the pillars. I believe this plan would eliminate the tendency to squeeze, by inducing the rock to break and thus relieve the pressure on the pillars. The practice should be continued until the pillars have been robbed back the proper distance. In the meantime, the fireclay bottom should be kept dry.

If these precautions do not avoid the occurrence of a squeeze, the only remedy to apply is to use still larger pillars than what I have suggested. More than once I have had an experience of this kind and, in each case, been able to obtain the desired results by increasing the width of pillars in the room and pulling everything out clean when drawing back. Any small stumps of coal or posts left standing in the waste act to prevent the fall of roof and invite a squeeze.

At no time should water be permitted to stand or be allowed to accumulate on a fireclay bottom. Sumps should always be dug and kept pumped or bailed out at regular intervals. This will generally provide good drainage and keep the bottom dry. It is my belief that if these precautions are adopted and followed closely, there will result a decided increase in the percentage of coal recovered and pay for the extra trouble.

Prestonsburg, Ky.

OSCAR STUART.

Preservation of Mine Timber

Letter No. 2—In addition to what is said in the reply to the inquiry regarding the preservation of mine timber, *Coal Age*, July 24, p. 164, let me offer a few suggestions and comments. A good description of the treatment of mine timber to prolong its life is given in Chap. 2, pp. 8-15, of a book entitled "Timbering and Mining," by W. H. Storms.

As stated in the reply to this inquiry, it is important that timber should be cut in the winter season when the sap has left the wood. Much timber, today, is cut during the summer, because of the ready market, both in the United States and in Canada. Much of it is left lying on the ground or piled, in any old way, exposed to the rain and the sun. Such timber when taken into the mine develops dry rot in a short time and breaks under light pressure.

Timber cut in the winter can be peeled the following summer quite readily. The bark of hemlock is valuable and could be sold at a good profit to tanning manufacturers. Hemlock is about the only timber that has a bark of any value. Most timber can be peeled if not permitted to become too dry, but when dry the bark is often difficult to remove. As soon as the bark has been stripped off, the timber should be stacked in an open shed where it will have the air and be protected from rain.

It is a good plan to pile mine timber on skids. For 12-ft. timber, the skids should be laid three feet from each end, which gives a more even bearing. For 18-ft.

sticks three skids should be used. When timber is peeled, the work should be done in the woods where it is cut. This will save freight charges and make the timber lighter to handle, besides avoiding the refuse bark accumulating in the yards.

There are many causes that shorten the life of mine timber. Poor ventilation and foul, damp air invite decay, dry rot and fungus growth. Bad jointing of timber frames causes undue pressure on the timbers and they are destroyed more quickly than when the joints are properly made. Also, driving a wedge in the center of a crossbar brings the pressure at the weakest point and the bar is soon broken.

The treatment of timber for its preservation may be done by the brush method when the job is a small one. However, where much timber is used in a mine, it is far better to employ the tank method. The timber is then immersed in a solution of creosote or carbolineum. Immersion in brine is also said to prolong the life of timber, but it should be continued for three days. Timber must always be quite dry when immersed so that it may absorb more of the preservative.

QUALITIES OF TIMBER USED IN MINES

A few remarks in regard to the qualities of mine timber may not be out of place here. Pine makes a good timber, particularly Norway pine, which is found in some parts of the United States, but is more abundant in British Columbia. The wood is tough and strong, but is apt to break quickly like hemlock.

Spruce is stronger than any pine but rots more quickly, except red spruce, which is noted for its smooth red bark and small limbs. White spruce is of no value; neither are cottonwood, balsam and poplar, which will stand little pressure and rot in less than a year when taken into the mine.

Hickory is a strong heavy timber, weighing 53 lb. per cu. ft. It makes a good timber for roof work, but cannot be used on roads and air-courses, as it rots too quickly. Maple is much the same as hickory, but should be well dried and peeled, as it is liable to be destroyed by insects.

Oak is the best timber for lining shafts or timbering airways and haulage roads. It is strong and resists decay under the wet conditions in mining longer than any other timber. It is said that oak timber will show no signs of decay in 30 years. Tamarack, if stripped of the bark, is excellent timber to resist decay, especially if the timber is well dried before being used. Young trees of this timber are better than the old growth.

Rawdon, Quebec, Canada.

C. McMANIMAN.

Prime Producer in a Coal Mine

Letter No. 3—Some time ago there appeared in *Coal Age* an inquiry asking the question, Who is the prime producer in a coal mine? In answer to this question, in the issue of June 19, p. 1137, W. H. Luxton made the statement, "The coal is not actually produced, until it has been placed where it can be utilized or, in other words, put on the market." I had thought that this question would be more fully discussed, and if not too late I would like to offer a few comments.

While I fully agree with Mr. Luxton in the statement just quoted, I cannot second his idea that the foreman is the prime producer in a coal mine. I am frank to

admit that the foreman is a necessary official in the mine, and an important factor in producing the coal and putting it on the surface. But, to my mind, he is only one of the larger wheels of the entire organized operation and is not the head or chief.

While a foreman, acting in his official capacity, may and does direct the work in the mine in his charge; or, in other words, is the large wheel that sets in motion all the smaller wheels concerned in the operation, he is himself dependent on or set in motion by a still larger wheel, the superintendent or manager; and these officials are again animated and controlled by the owners, operators, or board of directors and stockholders, who represent the dynamo or power that moves and directs the whole operation.

Let me say, just here, that wheels are not in the habit of turning themselves; they must be set in motion by some force or power. While one great wheel, if set in motion, may turn hundreds of smaller wheels, everything stops dead when the power that turns the big wheel ceases to act. It seems to me that the owner or operator of a mine, with his capital, is the force or power that moves the entire operation. As he is the one to take the first step that makes the production of coal possible and completes the cycle of operations by putting it on the market where it can be utilized, he is, in my opinion, the prime producer.

It will be argued no doubt, that capital cannot produce coal without labor; but, on the other hand, it is safe to say that labor could not produce much coal if capital did not furnish the means required to open and equip the mine. As far as this argument is concerned, there is no advantage to either party, as each are equally dependent on the other, and each are equally helpless without the other.

In the reply to this inquiry, Apr. 3, p. 637, it is stated, "The farmer¹ produces crops by tilling the land." Now, many of our farmers never think of holding the plow themselves, any more than the coal operator thinks of going into the mine and digging the coal. The farmer hires his men, as the operator hires the miner; and these hired men and miners are the actual workers. Then, if the farmer could be regarded as the prime producer of corn and wheat when the soil is tilled by hired help, it follows that the coal operator would justly be the prime producer of coal dug by the miner.

In conclusion, allow me to illustrate the situation presented, by assuming that a certain tract of land contains a valuable seam of coal, which cannot be utilized, however, until the property is developed and the coal brought to the surface. Suppose, now, a man with the necessary capital purchases the land and develops the property, through the employment of men for that purpose, and the coal is placed on the market. It appears to me that this man is the primary cause of putting the coal where it can be utilized and, consequently, must be considered the prime producer. JOHN ROSE.

Dayton, Tenn.

Origin of Coal

Letter No. 1—Reading the excellent article of C. W. Hippard, *Coal Age*, July 17, p. 104, giving a brief résumé on the theories, regarding the origin of coal,

¹The word "farmer" is here used in its primary sense as one who cultivates the soil, and does not contemplate in its meaning the employment of labor. In the same general sense, the coal operator would be a prime producer of coal were it not that the question submitted suggests a whole line of operatives concerned in the production.—Editor.

suggested to me the thought that to the seven wonders of the ancient world and those of modern civilization should be added the wonderful process, or processes combined, that have resulted in the formation of our coal deposits.

Eminent geologists advance two theories to explain the origin of coal. These are known as the "*In Situ*," and the "Drift" theories. Dana informs us that in the early ages when coal was being formed, the atmosphere surrounding the earth contained an excess of carbon dioxide, making the air denser and warmer, these conditions being particularly favorable to plant growth. He states that "plants live mainly by means of the carbonic acid (carbon dioxide) they receive through their leaves. The carbon they contain comes principally from the air." Through the process of decomposition and decay, much of this carbon has been deposited in the soil and later converted into peat and coal of varying grades and hardness.

ARGUMENTS ADVANCED IN SUPPORT OF THE DRIFT THEORY OF THE FORMATION OF COAL

Of the two theories mentioned, it seems to me the drift theory is supported by many facts observed in the coal measures. For example, while the trunks of trees are occasionally found in an upright or normal position in a coal bed, it is more common to find them lying flat in the seam, as driftwood would appear. Moreover, seldom, if ever, are there any signs of the roots of the tree, as would be the case had the tree grown or fallen where it was found in the coal bed.

To my mind, the sulphur balls found on the floor of coal seams are evidence of drift deposits, as are also boulders, rocks and other impurities found in the seam. Again, the fish deposits of the Devonian strata, which underlie the coal measures, would seem to indicate an inundation that would be favorable to the later deposits of the carbonaceous drift of the coal formations. It seems only natural to suppose that the fish of the Devonian were buried in the sediment deposited from the waters covering the surface at that time.

It must be admitted that both the *in situ* and the drift theories are supported by many observed facts, and each of these theories contributes its share in explaining what took place when coal was forming. The presence of the fossils of land animals in the coal measures would indicate that those animals lived in the forests whose growth has furnished the material from which the coal was formed.

ANTHRACITE A LATER STAGE IN DEVELOPMENT

It is not clear to me how both anthracite and bituminous coal are often found at the same depth and, at times, are in close proximity to each other and the fossils in the two beds are identical. Mr. Hippard speaks of the anthracite as being "the last stage in the production of coal."

The stratification of the coal formation appears to me to favor the drift theory, as the sediment deposited from the overflowing waters would naturally be stratified. This theory would also explain the gradual thinning out of the coal in the edges of large basins, which would naturally result in shallow waters, while the thicker deposits would form in the deeper waters of the basin, as is commonly found to be true.

¹Anthracite is the result of the later metamorphosis of bituminous coal, through the agencies of heat and pressure resulting from movements in the earth's crust.

I can only explain the formation of two or more benches of coal, on the *in situ* theory, by assuming that a movement of the earth's crust took place after the lower bench was formed, and a second inundation produced the second bench of coal. It is not uncommon, however, to see these bench formations underlying a perfectly level surface that extends for acres around.

The study of conditions affecting the formation and character of coal cannot but be of great interest to mining men, because of the assistance it gives them in explaining the facts observed in coal-bearing strata and enabling them to tell the probable results of the faulting and pinching out of coal beds. With this information at hand, it is possible to plan the workings of a mine more intelligently and systematically.

West Pittston, Penn.

RICHARD BOWEN.

Efficiency of Mine Workers

Letter No. 9—In discussing the efficiency of workers in coal mines, we must not forget the many difficulties and perplexities of that hazardous occupation. One worker may be thoroughly competent in a certain line of employment and yet be a source of danger to himself and others, unless he is carefully watched.

Before American mining experienced the great influx of foreign labor that has found its way into our mines, the coal miner was practically in a school while pursuing his work in the mine. At that time, every man could talk with another and receive the benefit of the other's judgment and experience by that means. Today, many of the men working in our mines speak different languages and are unable to converse intelligently with each other on matters of common interest to each of them.

Many of the men now employed have never seen a coal mine before in their life and know nothing of the dangers that surround them in the mine. They have been put to work because of the profits resulting to their employers by reason of the cheapness of their labor. Little regard has been had for the fact that human lives are being jeopardized by the employment of such labor.

MINE DISASTERS CAUSED BY LOW EFFICIENCY

In the early days of coal mining, there was little talk of efficiency and great disasters and loss of life were often the result. Such occurrences did not escape the public notice, and it was clear that something had to be done to prevent the recurrence of mine disasters and make the work of mining coal more safe.

It is but a short time ago, comparatively, that the great safety-first movement was launched, having for its main object the reduction of the accident list, in mines, through the education of the great mass of foreign workers employed underground. One of the most effective means of accomplishing this work was by a series of pictures illustrating how accidents occur and the right and the wrong way of performing work in the mines. "Safety first" became the watchword, then "Efficiency," and afterward, "Economy."

Good results were accomplished by this campaign; but it did not eradicate from the mind of the mine worker the spirit of discontent engendered by this influx of ignorant foreigners, who were sent into the mines in such large numbers.

The newcomers were rugged and strong and well adapted to rough work. In time, no doubt, they would

make good practical miners; but the work of instructing them has fallen to the lot of the American miners who have been compelled to act as tutors and give the necessary instruction as to the best and safest methods of performing work in the mine.

These conditions have proved a great drawback to efficiency, since the English-speaking miner has realized that the purpose of coal operators was to disrupt the organization of miners by the employment of this class of labor, whom they were compelled to instruct. In most cases, an experienced man was placed in charge of these raw recruits.

It is not strange that the failure to make a distinction between the skilled and experienced miner and the man who had to be instructed has been resented as "unjust." To these old and experienced miners, it appeared that the operator regarded Jack just as good as his master; and, because there was no recognition of ability and skill in the performance of work, a job has often been slighted and the work performed in a shoddy manner by men who were able to do far better.

Times have changed and, with the growth of the industry, many causes of complaints have arisen. A few years ago, a mine putting out 800 tons a day was a large mine, but the men could go and come at pleasure. No contracts or agreements between the operator and the men compelled the latter to remain in the mine after their day's work was done.

CONTRAST OF PRESENT AND FORMER CONDITIONS

Contrast the employment of 100 men in a mine at that time, with the conditions under which the 600, 800 or 1000 men labor who constitute the working force in a large mine, today. At times, a miner will now be kept underground 10 and even 11 hours a day.

Looking the facts squarely in the face, it must be admitted that these conditions obstruct the efficiency of mine workers. The ability of the management to keep pace with the handling of the coal from the face to the tipple should not be permitted to work a hardship on the miner who can produce his share of the day's output in less time than is required to put his coal on the dump.

In many of our large mines, it is claimed that a good miner can load 8 and 10 tons of coal in less than 8 hr., if he did not have to wait for his turn because no cars had been sent into his place, or because his coal has not been cut. If the nation's demand for coal can be supplied by the miner in a shorter time, why should he not be allowed to spend a few hours in the sunshine on the surface, instead of waiting in idleness in the darkness of the mine.

Apparently, there is a lack of efficient arrangement in the supply of cars to the miners in a manner that would avoid the necessity of his spending many idle hours in the mine awaiting his turn. As long as such conditions prevail, there is bound to be a spirit of unrest among mine workers; and where there is unrest and discontent, there can be no real efficiency.

Let us remember that the miner is human and needs good working conditions, good air to breathe and just treatment in the performance of his work. Efficiency does not mean merely a greater output of coal, but requires a regulation of the entire system of mining in a way that will conserve human energy and insure the good-will and contentment of mine workers.

Staunton, Ill. WILLIAM M. CHAMBERS.

INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD

Finding a Mine Door Set Open

In a certain mining textbook that I have appears this question:

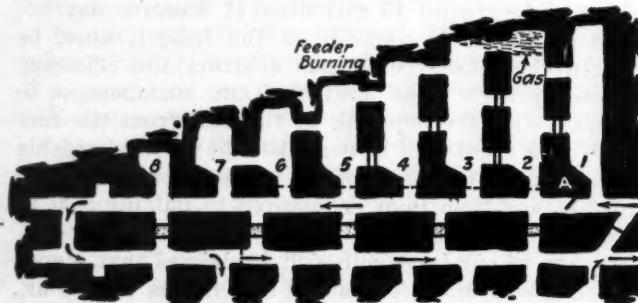
Ques.—Suppose, just before making your regular inspection of the mine, you discovered that a door had accidentally been left open, thus destroying the ventilation of the mine, say how you would proceed to make your inspection.

The answer to this question reads as follows:

Ans.—It would be necessary to close the door and wait a proper time for the circulation to be restored in the mine workings. As usual, the fireman should proceed only after ascertaining that the proper ventilating current is passing in the intake. If practicable, the circulation of the mine may be increased by increasing the speed of the ventilator. He should follow the intake current into the mine, examining with more than usual care each place where the accumulation of gas might be expected. After the inspection of the mine, the fact that the door was left open should be noted upon the daily report.

While this answer is along the line usually advocated in mining textbooks, it involves two features that I would like to see discussed in *Coal Age*, as I believe the answer given to the question does not apply to the conditions that frequently prevail in a gassy mine.

In the first place, we will assume that the fireboss starts the examination of his section of a gassy mine at the intake end of the section, or at the point indicated by *A* in the accompanying figure. At this point,



ASSUMED GASSY SECTION TO BE EXAMINED

we will say he finds the door on the gangway set open and the current short-circuited, the air passing along the gangway instead of being directed to the faces of the chambers. The door was probably set open and left by a careless driver, but the fireboss has no means of telling how long it has been standing open.

Now, according to the answer just quoted, the fireboss should close the door and wait awhile for the circulation to be restored in the chambers. But, we will assume that gas has accumulated, say at the face of chamber 2 as indicated in the figure. Also, let us say that a blast fired the night before, at the face of chamber 5, ignited a small feeder that is still burning quietly, being located in the roof.

The fireboss does not know that the feeder is burning at the face of Chamber 5, but assumes that gas may have accumulated in any or all of the chambers in that section. Should he now close the door, under the conditions mentioned, it is easy to imagine what would take place. The current would then pass up Chamber 1 and through the crosscut into Chamber 2 where it would

sweep away the gas and carry it through Chambers 3 and 4 and into Chamber 5, where it would be ignited by the burning feeder and cause an explosion of greater or less violence, depending on the conditions in the mine. This is one of the features that I would like to see discussed by readers.

The second feature to which I would call attention is the statement that the fireboss "should follow the intake current into the mine." This advice is commonly given in all textbooks, and it is safe to say that if the question was put to firebosses, 70 per cent. of them would answer that they had always started to make their rounds at the intake end of their section and followed the air current until the examination was completed. In my experience as fireboss, it has been my practice to be guided by the geological formation of the section to be examined. If I found it easier to travel by starting at the return end I have done so, regardless of the well-known formula, "Follow the intake current."

Now, in regard to a possible feeder burning in one of the chambers, it may be one of the chambers nearest to the intake, or one close to the return end of the section. Assuming that it takes a fireboss three hours to make the rounds in his section, he will be just as apt to reach the burning feeder, by starting at the return end, as by starting on the intake, since he does not know where the feeder is located. The only advantage, in favor of starting at the return end, is that he might smell the burnt air carried on the current and hasten to find where the trouble was located.

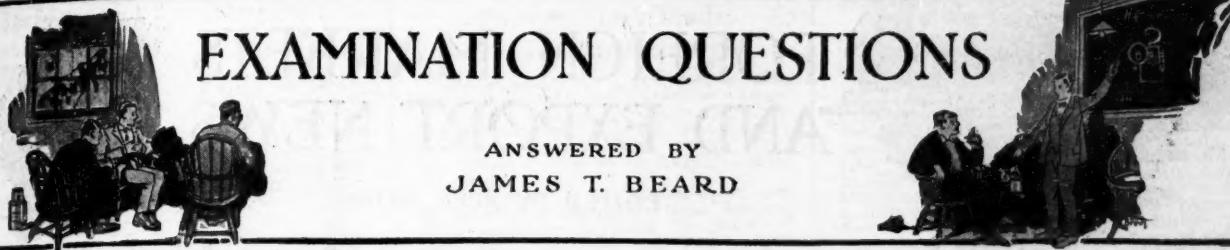
On the other hand, starting on the intake, one would not be apprised of the trouble until he reached the chamber where the feeder was burning, which might be the last chamber in his section. In the meantime, he may have found a small body of gas and erected a brattice to sweep it from its lodging place, which would involve the danger of its ignition when the gas reached the burning feeder. These possibilities have inclined me to favor starting the examination at the return end of a section.

It will, of course, be argued that when a man starts at the intake end he is traveling in fresh air and can always tell if the air has been short-circuited. But, suppose he can, he dare not close the door and restore the circulation until he has completed his inspection of the section. In my own experience as a fireboss, in many large gaseous operations, it has been my invariable custom to leave all doors and brattices the way I have found them, until I had ascertained the actual conditions of each working place in my section. I hope to see these two features broadly discussed.

West Pittston, Penn.

RICHARD BOWEN.

This is an important question and *Coal Age* is glad to present it to its practical readers, for discussion, as there are arguments on both sides that are worthy of consideration.



EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD

Miscellaneous Questions

(Answered by Request)

Ques.—How many gallons of water will a tank hold, the tank being 53 in. in diameter and 9 ft. 11 in. high?

Ans.—The tank has the form of a cylinder and the area of its base is $0.7854 \times 53^2 = 2206$ sq.in. The height of the tank being 9 ft. 11 in., or 119 in., its cubical contents is $2206 \times 119 = 262,514$ cu.in. The capacity of this tank is therefore, $262,514 \div 231 = 1136$ gal.

Ques.—State how you would proceed to rescue men, in a certain district of a mine, if a fire was to take place in the intake airway.

Ans.—It is difficult to give a wholly satisfactory answer to this question without knowing the exact plan of ventilation and arrangement of the rooms and entries in the mine and the district in question. However, it can be stated, in a general way, that the men working in the district should be notified, promptly on the discovery of the fire, to withdraw at once by the return air-course.

At the same time, also send word to the surface to slow down the ventilating fan, provided this can be done without danger to men working in other sections of the mine, who should be warned by messengers and instructed to withdraw at once to the shaft bottom or by any other means of exit available.

Immediate steps should be taken to start the pumps and get water on the fire. If the men working in the district where the fire is located have any other way out than by passing through the return airway, the air should be short-circuited and conducted at once into the return, by setting open a door or breaking down a stopping at the nearest practical point in by from the fire, so as to prevent as far as possible, the smoke and gases of the fire being carried into the workings. If the return airway is the only way out for the men working in that district, however, the air must not be short-circuited as that would cut off their only chance to escape smoke and gases of the fire.

Ques.—(a) What is the manometrical efficiency of a ventilating fan? (b) Work the following: If the mine resistance produces a $2\frac{1}{2}$ -in. water gage and the depression at the port of entry of the fan is 2 lb. per sq.ft., the area of the port of entry being 90 sq.ft. and the area of the port of discharge 65 sq.ft., what is the manometrical efficiency of the fan?

Ans.—(a) The term, "manometrical efficiency," in fan ventilation, refers to the ratio of the effective pressure to the theoretical pressure due to the fan's action. The effective pressure is the pressure in the fan drift and is the measure of the mine resistance.

(b) Since the mine resistance produces a water gage of $2\frac{1}{2}$ in., the effective pressure due to the fan is

$2\frac{1}{2} \times 5.2 = 11.7$ lb. per sq.ft. Now, since the pressure producing a circulation varies as the square of the velocity, and the velocity varies inversely as the area, the pressure varies inversely as the square of the area. Therefore, for the pressure at the port of discharge of this fan, we have

$$\frac{x}{2} = \left(\frac{90}{65}\right)^2 = 1.38^2 = 1.9$$

$$x = 2 \times 1.9 = 3.8 \text{ lb. per sq.ft.}$$

The pressure lost in the fan is the sum of the two pressures, at the point of entry and the port of discharge, respectively, or $2 + 3.8 = 5.8$ lb. per sq.ft. Adding this to the effective pressure gives, for the total pressure due to the fan's action, $5.8 + 11.7 = 17.5$ lb. per sq.ft.

Finally, taking this as the theoretical pressure due to the fan's action, the manometric efficiency of the fan is $(100 \times 11.7) \div 17.5 = 67$ per cent., nearly.

Ques.—With a 3 hp., we are producing 20,000 cu.ft. of air per min., how many horsepower will be required to produce 40,000 cu.ft. of air per min. in the same airway?

Ans.—In the ventilation of mines, the power producing a circulation varies as the cube of the quantity of air circulated. In this case, the quantity of air is doubled and the power required to do this must be increased as the cube of two or eight times. It will therefore require $8 \times 3 = 24$ hp. to double the circulation in this mine.

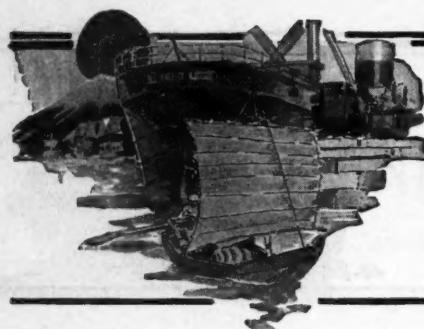
Ques.—(a) What is a water gage and where and why is it applied? (b) If the pressure producing ventilation is 10.4 lb. per sq.ft., what is the water-gage reading?

Ans.—(a) As shown in the accompanying figure, a water gage consists of a glass tube bent in the shape of the letter U. One leg of this tube is extended and turned over at a right angle to permit of its being inserted through a hole in a brattice or partition dividing the main intake and return airways in a mine. The tube contains water and when placed in this position in a brattice at the foot of a shaft, the reading of the water gage, in inches, indicates the difference of pressure between the intake and return airways, which is the pressure producing the circulation in the mine.

When the water gage is placed on the side of the fan drift, its reading indicates the difference of pressure between the fan drift and the outside atmosphere, which is the ventilating pressure producing the circulation in the mine and the two shafts.

(b) The water-gage reading corresponding to a pressure of 10.4 lb. per sq.ft. is $10.4 \div 5.2 = 2$ in.





FOREIGN MARKETS AND EXPORT NEWS

EDITED BY ALEX MOSS



Coal Mining in Germany

In the Ruhr district the time has not yet arrived when an increase in coal production can be expected. [Handelsberichten, The Hague, July 17, 1919.] Unrest still prevails here, though no strikes have occurred lately. The standard of living has been raised heretofore without a change in the level of wages. When the mine workers insisted on an increase of wages and the operators granted the increase, the members of the coal syndicate decided to increase the price of coal 10 marks and the price of coke 15 marks per metric ton.

The Government was unwilling to approve the increase, but it was considered that with a daily output of only 0.56 ton per man an increase in wages of 2 marks per man per shift made necessary an increase of 5 marks per ton in the price of coal. The Minister of Economics, supported by the whole cabinet in this matter, would like to put an end to the increase of both wages and prices. An order has been issued that the wage scale in the mining industry may not be changed without the Minister's approval. In order to obviate any further wage increases it is proposed to supply the miners with foodstuffs and clothing at low prices; overtime work is paid for in foodstuffs, chiefly butter and fat.

Increases Based on Maximum Prices

The Government consented to the smaller increase of prices as noted above, but the syndicate was not satisfied; maximum prices were, therefore, introduced, averaging about 5 marks for coal and 7 marks for coke higher per ton than the previous selling prices, exclusive of the coal tax and the tax on turnover. In these increases no account was taken of the higher operating expenses. It was also difficult to prescribe fixed prices for briquets, as those prices depend on the prices of tar.

On the basis of the maximum prices the coal syndicate has now determined to raise the selling prices, in accounts between the mines and the syndicate, by the following amounts over the prices established in May: Coal in general, 6.10 marks; nut coal, 6.70; poorer sorts, 1.70; coke in general, 8.50; small coke (1 to 3 millimeters), 10.20 marks. All these increases are per metric ton and include tax on coal and tax on turnover. They went into effect June 16, 1919.

For briquets a graduated increase of prices was chosen, beginning with 2.45 marks per ton on June 1 and rising to 7.35 marks on June 16, and 9.10 marks on July 1, 1919, as the prices of tar are constantly changing.

Of these new increases, 2 marks per ton is placed in an indemnity fund, which now receives a total of 12 marks per ton. Out of this fund indemnities are to be paid to mines whose financial situation is not favorable. The maximum prices for coal briquets have now been repealed.

Concerning production it may be said that with the present number of workers 250,000 tons ought to be produced, but in reality only 140,000 tons of coal are mined. This disappointing figure is the result partly of underfeeding, but for the most part of the diminished willingness to work and the shorter work day.

Lack of cars is another important factor. At present the railways furnish only about 14,000 cars per shift, so that the shortage amounts to 2000 to 6000 cars per day. The result is that the mines have to store up large quantities of coal. In the summer the consumers usually obtain their supplies for the winter, but this time the outlook for the winter is rather dark as the demand can not be satisfied. In the North Sea ports there is not enough coal for the shipping, and the industries can be supplied only to a limited extent. It may be expected that for the Netherlands no more will be available for the coming winter than the quantities already contracted for.

If the syndicate will really be able to fill orders. The ports of Duisburg and Ruhrtor are shipping 12,000 tons a day on the average, and the ports on the Rhine-Herne canal about 25,000 tons a day. Just now there is a shortage of ship space.

The mining industry in the Ruhr district is in an unfavorable situation just now. Besides, the political atmosphere has not cleared sufficiently as yet, and disorders and strikes may break out any day. [The normal exchange value of the mark is 23.8 cents U. S. currency; it is now quoted at a fraction over 5 cents.]

Russian Fuel Imports

During the first three months of this year fuel composed about 17 per cent. of the total importation to Vladivostok. The chief article of this group was coal, of which 852,000 poods were shipped. All this coal is of Japanese origin. The Far East has considerable quantities of its own coal in Souchan Mine and Sakhaline Island, and the considerable amount of coal imported from Japan is due chiefly to the difficulties of ocean transportation from Sakhaline Island. Many people in the Russian Far East, says a report received here, consider this importation from Japan as abnormal.

Coal Production in Venezuela

The production of coal in Venezuela in 1918 was 25,332 tons against 20,165 tons in 1917. All came from two mines operated by the Venezuelan Government. The mine at Coro was worked only from January to May, and the manager reports that no expansion can take place until a steam pumping system is provided. Considerable improvements have been made at the Naricual mines, and their development to an output of 500 tons daily is contemplated. The plan involves the installation of briquetting machines to make 3500 tons of briquets per month out of the dust of this very friable coal. The electrification of these mines, using the falls of the River Neveri as a power source, is also suggested. The present cost of coal at the pit mouth is 13 bolivares (\$2.51) per metric ton, and 25 bolivares (\$4.83) per ton f.o.b. Guanta. For next year it is figured that the latter cost will be only 23 bolivares (\$4.44). Coal is sold to private parties at 40 bolivares (\$7.72) per ton.

The output of the coal mines of Japan increased from 21,083,000 tons in 1913 to 22,901,000 tons in 1916 and 27,500,000 in 1918. The growth of the industries is shown by the increase in industrial consumption from 7,530,000 tons in 1914 to 10,426,000 tons in 1916 and 16,020,000 tons in 1918. As 15 new mining companies were established in Hokkaido, Kyushu, and other islands, it is expected that the production will be considerably increased this year. The total consumption of coal in Japan was 18,055,000 tons in 1913, 20,440,000 tons in 1916, and 25,980,000 tons in 1918, thus leaving relatively little margin for exports.

New Coal Mines in Colombia

Vice Consul S. J. Fletcher reports from Cartagena, under date of June 26, that the first shipment of coal from the San Jorge River district arrived at Barranquilla by the steamer Magangué on June 3, 1919.

At Playa Rica, on the San Jorge, there are immense deposits of coal practically on the surface, and for six leagues along the bank of the river the coal seams can be clearly seen. Up to the present time the difficulty has been lack of transportation. The Magangué's trip to this region was made possible only by the extremely high waters of the San Jorge at this time, and to the use of dynamite in clearing the passage. It is estimated that an expenditure of from \$10,000 to \$15,000 would place the stream in navigable condition for river steamers.

Should the projected railroad from Cartagena to Ayapel, traversing the length of the Department of Bolívar, become a reality, it would furnish a direct means of transportation for this coal, which it is estimated could then be supplied to the market in Cartagena for \$5 a ton.

Siamese Coal Market and Imports

Siam is dependent upon foreign countries for its supply of coal, as up to the present time only brown coal or lignite has been found within the limits of the Kingdom, states Vice Consul Carl C. Hansen, of Bangkok, in a recent *Commerce Reports*. Large seams of these lignite deposits have been discovered in several parts of the Siamese Malay, but so far no satisfactory workings have been reported. The various manufacturing and other concerns in Bangkok use paddy (rice) husk and wood for fuel, and on the railways wood is burned, the imported coal being too expensive for fuel in both instances. For the same reason ships calling at this port usually bunker coal at Singapore or Hongkong.

The total quantity and declared invoice value of Siam's coal imports from foreign countries amounted to 10,841 metric tons (metric ton equals 2204.6 lb.), value \$62,623, in the fiscal year ended Mar. 31, 1913; 19,722 tons, value \$134,783 in 1914; 25,026 tons, value \$148,869 in 1915; 15,478 tons, value \$88,400 in 1916; 30,752 tons, value \$324,909 in 1917; and 26,356 tons, value \$494,460 in 1918.

Coal imports by countries of origin through the port of Bangkok are as shown below for the fiscal years 1913-1918, inclusive (kilo equals 2204.6 lb.).

According to the declared import values the price of coal had gradually advanced from about \$5.50 gold per metric ton in 1913 to \$18.50 in 1918, while the present (June 25, 1919) market rate is \$25 per ton. [A list of Bangkok importers of coal may be obtained from the Bureau of Foreign and Domestic Commerce or its district and co-operative offices by referring to file No. 122127a.]

Countries of Origin	1912-13 Kilos	1913-14 Kilos	1914-15 Kilos	1915-16 Kilos	1916-17 Kilos	1917-18 Kilos
Australia.....	202,212	121,927				
China.....	138,293	1,131,888	3,303,698	2,502,596	3,942,302	7,660,000
Hongkong.....	972,266	360,718	1,592,062	4,685,795	10,926,775	10,109,000
India.....	3,400,286	3,303,055	3,139,342	1,153,102	6,047,190	
Indo-China.....	54,900	60,963	461,289			3,119,000
Japan.....	2,563,512	7,392,596	11,299,062	5,991,936	8,564,129	4,126,000
Netherlands, India.....	1,015,045					
Singapore.....	1,199,965	3,014,185	315,382	1,144,215	1,272,201	1,342,000
South Africa.....	492,788					
United Kingdom.....	801,367	4,336,437	4,914,974			
Total.....	10,840,633	19,721,769	25,025,809	15,477,644	30,752,597	26,356,000

September 11, 1919

COAL AGE.

465

Italy to Get Fuel Supply

The danger that Italy would soon be averted, according to reports coming from that country. The Italian delegation in Paris has obtained from France, it is reported, a daily concession of 1200 tons of coal from the mines of the Saar Valley. It has also been arranged that France will furnish Italy approximately 4,300,000 tons of the 5,500,000 tons of coal due Italy from Germany, according to information reaching the Department of Commerce.

British Investments in Argentina

Referring to news reports alleging friction between Great Britain and Argentina due to extensive English investments in the latter country, the National Bank of Commerce in New York says that \$2,000,000,000 has been considered a conservative estimate of the amount of such investments.

"Owing to the newness of the country and the character of its industries," the bank says, "Argentina has always been a heavy importer of foreign capital. A report recently issued by the Director General of Commerce and Industries of Argentina clearly shows the predominance of British capital in the industrial organization of the republic. The total amount of British investment there is not known, but two million dollars has been considered a conservative estimate. The figures given below include only the realized capital of limited liability companies.

	National	British	Other Countries	Total
Railways and other commercial enterprises	\$314,810,931	\$1,324,902,683	\$112,581,830	\$1,752,295,444
Industrial enterprises	128,879,242	78,793,248	15,041,120	222,713,610
Total	\$443,690,173	\$1,403,695,931	\$127,622,950	\$1,975,009,054

"It is known that British capital in railways alone amounts to \$1,138,756,484. This represents about ten times the railway investments of any other foreign country in the Argentina. The distribution of British capital by industries shows how thoroughly the British lender has penetrated into the economic life of the country:

Tramways	\$133,434,262
Forestal products	31,239,952
Gas	29,661,644
Mortgage companies	28,408,685
Tobacco, sugar, wine and beer	28,062,336
Meat freezing and preserving	27,241,081
Docks, warehouses and waterworks	27,097,519
Farms and ranches	24,662,999
General stores	21,067,079
Telephones and telegraphs	15,537,840
Electric light and power	13,239,411
Metallurgical and mineral	5,429,837

"The close trade relations between Argentina and the United Kingdom are shown by the fact that for a long period almost one-third of the total imports into Argentina were received from Great Britain, to which one-third of Argentina's total exports were sent. The war has resulted in a small reduction in the amount of imports from Great Britain but exports to her show a tendency to increase."

With such a hold on the economic and industrial life of the Argentine, it can readily be understood why it will be hard for American coal exporters to retain the bulk of the Argentine trade in fuel when England's coal mines resume normal operation.

Coal Situation in New Zealand

At the present time there is a serious shortage of coal throughout New Zealand, owing to the decreased production in the mines, the increased consumption because of the opening up of business in general, and the difficulty in obtaining sufficient shipments from Australia. The position is so serious that the New Zealand Government has appointed a committee to investigate the coal problem and to advise as to the best way to increase the Dominion output. Recently the Government purchased two more state mines, one near Huntly in the North Island, and the other in the vicinity of Westport in the South Island.

The increased demand for coal is partly due to the increased consumption of the railroads and industry in general. Some of the largest demands for coal in New Zealand per annum are: Railways, 300,000 tons; bunkering requirements, 440,000 tons; freezing works, 180,000 tons; gas works, 240,000 tons; electric light and power, 70,000 tons. The industries and services mentioned require almost exclusively hard

Foreign Coal Trade Opportunities

The purchase by a manufacturer in Spain is desired, among other things, of coal in briquets for railway, forge and metal work. Quotations should be given c.i.f. Spanish port. Correspondence may be in English. File No. 30496.

A company in Italy desires to act as agents for steamship lines, looking after steamers arriving in ports of that country, having branches in four of the Italian ports. It wishes to manage steamers on time charter, and is also in the market as coal importers. Correspondence may be in English. References. Further information may be obtained by addressing the Bureau of Foreign and Domestic Commerce, Washington, D. C., or any of its branches, and referring to File No. 30495.

coal. The total consumption of coal in New Zealand for 1918 was 12,078,626 tons, which, compared with the total consumption for 1914, showed a shortage of 715,000 tons, of which 529,000 tons represented New Zealand coal.

It is well understood that there is plenty of coal in New Zealand, but the great difficulty the Government has to face is

this coal to relieve the present acute shortage.

Much of the coal mined in the Dominion, especially in the North Island, is soft. In mining there is a loss of 30 per cent., and by the time the coal reaches the consumer there is approximately 50 per cent. slack, which makes the fuel unsuitable for railroad use. There is much talk and search for practical methods of utilizing the slack, especially along the line of briquetting. A New Zealand business man is proceeding to the United States to investigate American methods of utilizing fine coal and in search of a practical method for briquetting New Zealand coal. One great difficulty is that there is 14 per cent. of moisture in this slack, which it is thought must be extracted before the slack can be satisfactorily manufactured into briquets that will stand the weather.

If shipping rates are reduced and coal can be exported to New Zealand at a low cost, certain grades of American coal should find a fair market there.

I. C. C. Decisions

Ex-Parte No. 68. Coal Rates to the Northwest. Submitted June 26, 1919. Decided July 5, 1919.

A controversy concerning the relationship of rail-lake-and-rail rates on bituminous coal to the northwest from mines in Ohio and West Virginia to all-rail rates from Illinois and Indiana mines, reported upon at the request of the Director General of Railroads.

No. 10,234. Virginia Iron, Coal and Coke Co. et al. Director General, Southern Railway Co., et al. Submitted May 14, 1919. Decided June 27, 1919.

1. Increased rates on iron ore to Middletown, Ky., from points in Tennessee, Georgia, North Carolina, and Virginia on the Southern Railway and the Rome & Northern and Louisville & Nashville railroads found justified.

2. Practice of stating rates on iron ore in terms of net tons instead of long tons not shown to be unreasonable or otherwise unlawful. Complaint dismissed.

Investigation and Suspension Docket No. 196. Advances on Coal Within Chicago Switching District. Submitted May 2, 1918. Decided June 9, 1919.

Upon rehearing in the matter of divisions of through rates on coal and coke to Chicago, Ill.; Held, That the record justifies a conclusion that from and after July 1, 1917, the Chicago, Milwaukee & St. Paul Railway Co. should receive 20c. per ton as its division of the through rates on coal and coke for deliveries within the so-called inner zone of the Chicago switching district, and increased divisions upon the present relative basis for deliveries at other points within that district.

New Shipping Rates on Coal to European Ports

New shipping rates on coal and coke from United States North Atlantic ports and Charleston, S. C., to various foreign

ports, have been ordered and put into effect by the United States Shipping Board. The new rates are as follows:

To:	Coal per Ton of 2,240 Lb.	Guaranteed Tons Daily Discharge	Coke per Ton of 2,240 Lb.	Guaranteed Tons Daily Discharge
Bordeaux, Havre, St. Nazaire	\$22.50	700	\$33.75	600
Cherbourg, Dunkirk	22.50	700	33.75	600
Rouen	23.00	1,000	34.50	600
Antwerp, Rotterdam, Terneuzen	22.50	1,000	33.75	600
Gothenborg	24.00	1,000	36.00	600
Landskrona, Malmo	25.00	800	37.50	600
Oxelosund	24.00	1,500	36.00	600
Stockholm	26.00	800	39.00	600
Helsingfors, Sundsvall	28.00	800	42.00	600
Bergen, Christiania, Copenhagen	25.00	1,000	37.50	600
Korsor, Ronne	26.00	1,000	39.00	600
Trondhjem	27.00	1,000	40.50	600
Lisbon	22.50	1,000	33.75	600
Bilbao, Cadiz	23.50	1,000	35.25	600
Barcelona, Cartagena	26.00	1,000	39.00	600
Cette, Marseilles, Naples	26.00	1,000	39.00	600
Civitavecchia	26.00	1,000	39.00	600
Nice, Genoa, Leghorn, Spezia, Savona	26.50	1,000	39.75	600
Piraeus	28.50	1,000	42.75	600
Venice, Trieste, Fiume	31.00	800	46.50	600
Salonica	31.00	1,000	46.50	600
Bari	30.00	1,000	45.00	600
Constantinople, Constanza, Smyrna	31.00	1,000	46.50	600
Algiers, Oran	26.00	800	39.00	600
Tunis	26.50	1,000	39.75	600
Sfax	27.50	1,000	41.25	600
Alexandria, Port Said	31.00	1,000	46.50	600

Conditions—Discharge as above indicated, with time counting 24 hours after arrival, whether in berth or not. Sundays and holidays only excepted. If discharge is not completed within the time specified, demur-

rage to be paid at the rate of \$1 (50c. wooden vessels) per ton, payable day by day.

Coke—Subject to condition that vessel have option of carrying not over 25 per cent on deck at owner's risk.



COAL AND COKE NEWS

Harrisburg, Penn.

Workmen's compensation insurance state fund differential may be done away with. Commissioner Donaldson long opposed to its continuance. Stock companies always have resented state entering insurance field. State fund great success, with annual income of \$2,500,000. Whole matter threshed out at hearing called by Donaldson.

Agents of stock companies writing workmen's compensation insurance are already announcing to prospective clients that when the time comes to close on business for the coming year, the state fund ten per cent. differential will be a thing of the past. Insurance Commissioner Donaldson has not yet authorized any such statement. However, he has long been on record as being opposed to the state fund differential, and has recently been setting the stage with a view to giving the differential the knockout blow and making it appear that its elimination has long been a move mutually agreed upon.

The state workmen's insurance fund has been permitted ever since it was started to write compensation insurance at rates ten per cent. below all competitors. The stock companies, from the first, have bitterly resented this alleged advantage. When the fund was organized the companies started to kill the idea that the state had a right to go into insurance. It was the stock companies' theory that the state, having passed a law compelling all employers to take out compensation insurance, should keep out of the field and permit the stock companies to reap a golden harvest.

The stock companies poured a multitude of agents into the field when the state fund started. The principal business of the agents at the time—in many sections of the state—was to maintain, on every possible occasion, that the state fund would fail; that the politicians would plunder it; that the state fund scheme was socialistic and that the money spent in establishing it was a woeful waste of funds belonging to the people.

The state fund, however, has not failed. It now has an annual premium income of approximately \$2,500,000. Its assets are in excess of \$3,600,000. It has a surplus fund of \$1,800,000, and has more than 24,000 policies on its books, a great many of these being coal companies at one time held by stock companies. The state fund showing is the answer to the initial statements regarding it made by the stock companies and their representatives.

When the state fund was launched, the state board insisted, that as it would not have a horde of agents and was designed as an agency that would serve as an insurance rate regulator, the state's venture should be given the benefit of a ten per cent. differential. At present the board is composed of State Treasurer Harmon Kephart, Insurance Commissioner Charles Donaldson and Commissioner of Labor and Industry C. B. Connolley. The disposition of the differential, however, is in the hands of Mr. Donaldson, as insurance commissioner. As insurance commissioner, Mr. Donaldson can veto any position regarding rates that the board may take. Messrs. Connolley and Kephart could petition, suggest and advise, but Mr. Donaldson can do as he pleases as far as continuing the differential is concerned.

At a hearing recently called by Mr. Donaldson, representatives of the stock companies were given a chance to demand that the differential be abolished. An attempt was made at that meeting to prove that former State Commissioner of Labor and Industry Jackson and the late State Treasurer Young had agreed, that as soon as the state fund's premium income was in excess of \$1,000,000 a year, not only would the state fund differential be abolished, but the fund would cease seeking business.

The representatives of the stock com-

panies did not attempt to deny that the 10 per cent. differential was an advantage. That was the burden of their plea. The thing they were condemning throughout the hearing was the idea of cheap insurance. Moreover, their idea of fairness contemplated placing a fund with virtually no field force, on a level with concerns that overrun the state with agents. The state fund has been a thorn in the side of the stock companies ever since it was started. They believe that now is the time to make a drive. If the companies can buck up against a fund minus its differential they believe they will be able to prove their original contention that state insurance is a failure.

Commissioner Donaldson believes the differential is unscientific; that insurance should be written on a level basis; that instead of a differential the state fund should make its return to the policy holders in the form of increased dividends. At times during the hearing, Mr. Donaldson intimated that the very idea of a state fund was perhaps a mistake and there was no real reason why the insurance business should not be left entirely to the insurance companies.

The insurance commissioner, however, apparently disagrees with the representatives of the stock companies in one particular. The stock company crowd is not at all certain that the state fund will survive without its differential. Mr. Donaldson says the fund can maintain itself without any advantage whatsoever in the matter of rates. If the differential is abolished, it seems to him that the responsibility of making good on that proposition will devolve upon him.

The whole state fund matter narrows down to the proposition that it is not popular with the stock companies, which want to hamstring it, their reasons being that if all employers in the state, now carrying compensation insurance, were insured in the state fund then the estimated annual saving would be in excess of \$2,500,000. The abolition of the state fund differential involves a change in policy that the management of the state fund, prior to the advent of Insurance Commissioner Donaldson, had not expected.

Charleston, W. Va.

Poor transportation handicaps both New River and Kanawha fields. Little improvement expected. Cars held in the West. Labor Day cuts down production in union fields. Production 60 per cent. in C. & O. territory in final week of August.

"Transportation disabilities"—to quote a recently coined phrase—made themselves felt throughout central southern West Virginia coal fields during the last week of August to such an extent that the output was even lower than during the previous week, the Kanawha and New River districts suffering alike in that respect. The effect of such a car shortage was to restrict mines in Chesapeake & Ohio territory to about a 60 per cent. production. While mines in this territory got away with a flying start, the supply of cars was of short duration and before the week had advanced very far, operations were extremely irregular at a good many mines. It was apparent that there had not been a complete recovery from the shopmen's strike; another factor in the shortage of cars was the failure of western connections to return open top cars to eastern lines.

Railroad officials advance the opinion that little improvement can be expected in the car supply, owing to the fact that regional managers of western roads are holding cars for use in the West instead of returning them for circulation in the eastern Car Pool, and hence are contributing to the prospects of a coal shortage when winter sets in. Vessels were also said to be scarce at tidewater, thus holding up equipment at eastern terminals. Because of the continued car shortage throughout

August, West Virginia mines were unable to regain any lost ground—in fact further ground was lost.

Observance of Sept. 1 as Labor Day of course cut down production in the union fields but in the non-union fields there was said to have been almost a record production, although cars were not plentiful by any means. A large production, however, was not anticipated for the first week of September. That widely circulated rumors of strikes in some of the non-union fields were without foundation, was shown in the fact that in one non-union field there was a production of 900 cars on Labor Day.

While market conditions, as reflected in the Kanawha region, were auspicious for a large production during the final week of August, a most pronounced car shortage checked production during that period to such an extent that the output was somewhat lower than for the week ended Aug. 23, a car shortage on the Kanawha & Michigan still further lowering the production for the week. On that road, during a part of the week at least, it was said that the car supply was sufficient only to make half time operation of mines possible. There was also an inadequate supply of cars on the Chesapeake & Ohio system, the shortage making it impossible to produce up to more than 60 per cent., as nearly as can be estimated.

A large proportion of the tonnage produced in the Kanawha region was flowing to tidewater and to inland western markets. The movement of byproduct coals to the Lakes was apparently on the increase. There was also a better demand for steam coal in evidence, producers claimed. Mines whose output is confined to run-of-mine coal are nearly all in operation now as far as the car supply will permit. Unauthorized strikes in the Kanawha region also served to cut down production.

Production fell behind in the New River field during the final week of August, as compared with the previous week, to the extent of about 15,000 tons, the output being only about 60 per cent. of the possible production. The supply of cars during the early part of the week gave promise of stimulating production, but the large car supply only lasted for a day; during the other five days of the week, mines were forced to put up with quite irregular transportation. On Labor Day all mines in the New River field were shut down and there was, therefore, little chance of a large production during the first week of September. When miners went to work on Sept. 2, it was under the new-wage contract just adopted by the miners and operators of the field. Little spot smokeless was available as far as the New River territory was concerned. In fact producers were finding it difficult to meet the requirements of the export and coastwise trade as well as the needs of the Navy and the merchant marine.

Fairmont, W. Va.

Relapse in northern West Virginia after partial recovery from car trouble. Embargo interferes with shipments to tide. Tonnage to Lakes small. Car-shortage statistics wired to Senate committee investigating coal situation.

There was in northern West Virginia regions at the wind-up of August what might be called a relapse after the mines had had a partial recovery from car trouble, lack of circulation of empties making inroads on the output of northern fields, as compared with the week ended Aug. 23. The car shortage existed virtually throughout the entire week and was in strong contrast to the excellent car supply of the week of the twenty-third; the Monongalia field also being handicapped by insufficient transportation facilities. Even on such days as the cars were more plentiful, late placements handicapped

mines in getting their full quota of coal loaded, and it is estimated that in the Fairmont region alone 2000 less cars were loaded during the last week of August than was true of the previous week. On the Monongahela Ry. for instance, toward the latter part of the week, there was not more than a 30 or 40 per cent. placement.

Many producers in the northern part of the state have been shipping to tidewater for export, and an embargo, which became effective as to Curtis Bay shipments toward the latter part of the week, interfered with the plans of operators to a very material extent. Shipments to the Lakes during the week were also discouragingly small. There seemed to be little variation in the shipment of railroad fuel as compared with previous weeks. Slack was in growing demand in northern West Virginia regions, and a heavier demand for run-of-mine has had the effect of causing a resumption of operations at a number of small mines.

The car shortage was deemed of sufficient importance to warrant officials of the Northern West Virginia Association telegraphing figures to officials of the National Coal Association, at Washington, for the purpose of having them read into the record of the hearings held by the Senate committee investigating the coal situation. At the same time a warning was given operators not to ask for more empties than they could load on any one day, as has been the practice in some cases, because of the effect it would have on region rating.

Bluefield, W. Va.

Paradoxical increase of output in Pocahontas field in face of car shortage. Working-time loss decreased. Car shortage alone holds down production.

By what amounts to almost a paradox, the mines of the Pocahontas region, during the week ended Aug. 30, increased their output by 34,000 tons, in the face of a slightly increased car shortage and with an increase in working time of only 85 hours. In other words, though the working time was practically the same, the output was materially increased, the production jumping from 98 tons per hour to 106 tons per hour. Total production was 329,621 tons as against 295,000 tons for the previous week. One hundred hours of working time was lost during the week.

The tonnage lost, because of the car shortage, was increased from 137,000 to 139,000 tons, but, strange to say, the working time lost was decreased from 1238 hours to 1189 hours. Aside from time lost by car shortage, only 110 hours were lost from other causes, showing absolutely beyond controversy that a car shortage and a car shortage alone is holding down production. Labor conditions show much improvement following the recent increase in wages in the Pocahontas field. There appears to be a somewhat better demand for coke, 1200 more tons of coal having been coked during the week ended Aug. 30 than was the case during the previous week.

Loading of coal on the Norfolk & Western R.R. during the week ended Aug. 30 exceeded that for any other week in August. During that period, a total of 1133 50-ton cars, or 566,500 tons of coal, were loaded and hauled according to figures supplied by the general superintendent of transportation.

Huntington, W. Va.

Logan field loads 900 cars on Labor Day. Operates as usual, thus disposing of strike report. Car shortage holds production down to 50 per cent. of capacity. Shipments large to tide, but embargo possible later. C. & O. handles 2,000,000 tons in August, shortage of 1,000,000 tons due to shopmen's strike.

Despite the fact that it was Labor Day, mines in the Logan field on Sept. 1 managed to load in excess of 900 cars of coal, almost equaling the loading record in the district. In other fields operations were suspended, but the Logan district, being an unorganized field, operations were continued as usual and production speeded up. So large a production on a holiday effectively disposed of the reports that the miners of the Logan field had gone on strike or intended to go on strike. During the week ended Aug. 30, the total production was 199,217 tons, or 50 per cent. of full time

capacity; there was a production loss during the same period of 198,000 tons, 177,000 tons of which was directly attributable to a shortage of cars. The increase in the car-shortage loss for the week was 10,000 tons, a scarcity of cars causing a loss of 2772 hours of working time.

The strike at Monitor, which was so greatly magnified by mine workers officials, caused a loss of only 27 hours or 1700 tons. A special effort was made to give the Logan field a sufficient car supply at the outset of September and the indications early in the week were for a substantial gain in the output. Shipments were large to tidewater points, although there was no assurance that such shipments would be continued to the seaboard, owing to the probability of an embargo. As far as could be learned, Lake shipments were increased in volume.

The volume of coal handled by the Chesapeake & Ohio R.R., during the last week of August, was somewhat under that for the week ended Aug. 23, the total number of cars loaded and handled being 11,798. Although official figures have not been made public, yet it is believed from semi-official estimates, that the total tonnage handled by the C. & O. during the month of August will be almost 1,000,000 tons short of the tonnage handled during August, 1918. In other words tonnage handled during August, 1919, amounted to only about 2,000,000 tons. A large part of the reduction was due, of course, to the strike of shopmen on the C. & O. lasting a period of two weeks, during which time little or no coal was hauled by the C. & O. An earnest effort was made to overcome the losses resulting from the strike but a shortage of cars checked the effort to regain lost ground.

Columbus, Ohio

Coal production statistics of Ohio for 1918. Great headway in machine mining in the state. Counties making best showing in production noted. Fatal accident statistics analyzed. Comparisons of interest to coal men.

In 1918 the state of Ohio produced 47,894,226 tons of coal, the first in the history of the commonwealth, according to the statistical report of the Ohio Industrial Commission made public recently. Of this tonnage, 4,996,192 tons were produced by the use of the pick, 40,122,379 tons by machine mining, and 2,730,655 tons by stripping. Lake shipments during the year totaled 29,388,242 tons. Machine mining has made great headway in this state as in the year 1918, about 84 per cent. of all coal mined here was undercut by machines. A little over 10 per cent. was mined by hand and nearly 6 per cent. was recovered from stripings. In some cases where crop coal is stripped, the tonnage from this source is clear gain as the coal would probably largely be wasted otherwise.

By further analysis of this report, it develops that Belmont County, as has been the case for the past decade, was the largest producer with 12,165,253 tons to its credit; this is an increase of 1,008,627 tons over the previous year. Jefferson County produced 7,266,314 tons, an increase of 1,484,074 tons over the previous year. Athens County produced 6,654,862 tons, an increase of 341,063 tons. Other large producing counties were: Guernsey, 4,493,718 tons; Perry, 3,452,338 tons; Hocking, 2,347,657 tons. The report showed a heavy decrease in production during the last half of the year, owing to labor shortage and military service.

There were 135 fatal accidents in the coal mines of Ohio during the year, of which 92 were caused by falling slate and rock and 27 by mine cars; of the total number 48 fatal accidents occurred in Belmont County alone. Several points stand out in connection with these fatal accident statistics. There was one death for every 355,000 tons of coal produced; the production per death for the whole country was about 266,000. The number of deaths caused by falling rock and slate, constitutes a large proportion of the fatal accidents from all causes—about 68 per cent. The average in the coal fields of the country from this cause has been around 50 per cent. for years. Furthermore, Belmont County produced about 25½ per cent. of the tonnage of the state, and about 35½ per cent. of the fatalities in the mines of Ohio are credited to this county for the year 1918; the fatalities are out of proportion to the tonnage in Belmont County, compared with the rest of the state.

Louisville, Ky.

Opinion affecting 60,000 acres of coal and timber lands in eastern Kentucky. Important case decided in Letcher County. Other suits pending in adjoining counties. Salient features of Letcher County suit. Prominent coal corporation involved.

Escheat proceedings under which title to 60,000 acres of coal, oil and timber lands in Letcher County, Ky., was involved, were quashed in the Letcher Circuit Court, Whitesburg, Ky., on Sept. 3, when Judge Joel E. Childress, presiding, dismissed the action brought in the name of the Commonwealth, rendering the opinion that Blahey & Blahey, attorneys, did not have sufficient authority to enter the suits.

According to Attorney General Morris, Eli H. Brown, of Louisville, first proposed to institute such proceedings, but his offer was declined. Clayton B. Blahey, made a similar proposal which was accepted, a contract being made whereby former Governor A. O. Stanley and Attorney General Morris agreed to allow Blahey a 30 per cent. fee out of the proceeds of lands escheated to the state, under the five-year limitation statute, under which all corporations must make use of lands in their possession within that period. Names or locations of corporations were not divulged by the attorneys, and later blanket suits were filed involving thousands of acres of coal, oil and timber properties valued at millions of dollars, in Pike, Letcher, Lee, Estill, Christian and Muhlenburg counties, under the allegation that the lands being held by corporations, had not been used by them for a period of five years in the operation of their business (as provided by law) and should revert to the state.

Later on Attorney General Morris endeavored to get into communication with Blahey, who was in the West, and with Brown (who he figured was a silent partner) with the intention of reviewing the cases as to merit, as they had been filed without his being consulted. He could not get in touch with the attorneys. He next issued instructions that pipe line companies could take oil from producing companies, regardless of proceedings.

The case decided in Letcher County is the first to be disposed of, and others will follow rapidly. In Floyd County similar cases will be disposed of within a few days and also in Perry County, at Hazard. Corporations were disposed to show conclusively that a considerable part of the properties were in a rapid state of development. The Flahaven Land Co. recently filed a \$100,000 damage suit against Blahey & Blahey, as a result of the suit filed against that company.

The first four suits filed in Lee County were against the Flahaven Land Co., Huntington Land Co., Eureka Coal and Mineral Co., First National Bank, of Jackson, and the Lee County Land Co.; these suits were followed by suits against Brandenburg Mineral Co., and Beattyville Town Co. These suits affected large tracts under lease, and upon which operations of one sort or another were in progress, including any number of oil companies.

The principal companies figuring in the suits in Letcher County were the following: The Virginia Iron, Coal and Coke Co.; Roberta Coal Co., a Virginia corporation; The Mineral Development Co., Philadelphia; Swift Coal and Timber Co., Lake Charles, La.; and the Vizard Improvement Co.

During the time that the title to these lands was clouded development was severely interfered with. Final action was taken in the Letcher Court after the cases had been called three times, and delayed.

Nanaimo, B. C.

Canadian Western Fuel Co. advances wages 25c. a day. Statement by the company. Dominion Department of Labor investigates wage increases of Nanaimo district and explains whole situation. Canadian company will meet all wage increases of other companies in excess of its own.

The employees of the Canadian Western Fuel Co. have received an advance of 25c. a day in their wages from Sept. 1. This was announced officially as follows:

"The request of your committee for an increase for the employees of the company on account of the increased cost of living has been given due consideration. To assist in meeting this condition the management will put in effect on Sept. 1 an additional bonus of 25c. a day. This bonus will remain in effect until such time as the cost of living shall be reduced a like amount.

In this connection attention is called to the fact that the basic scale for both tonnage and shift rates is higher at Nanaimo than in the competitive districts. The management hopes that it will continue to have the co-operation of the employees in its efforts to increase production and in maintaining the high standard of Nanaimo coal."

In this connection, D. T. Bulger, of the Dominion Department of Labor, has just concluded an inquiry into allegations by some of the miners of Nanaimo district that the Canadian Western Fuel Co. was not paying wage increases granted by the Cost of Living Commission as compensation for the fluctuations in the cost of living prices since Sept. 1918.

Mr. Bulger learned that the men who made this charge misunderstood the situation and explains it as follows: "For the quarter ended Dec. 31, 1918, the increase was 2½c. a day; for the quarter ended Mar. 31, 1919, 2½c. a day; and for the quarter ended June 30, 1919, 14½c., making a total increase since Sept. 30, 1918, of 19½c. a day. Through erroneous statements the impression was gaining headway among the miners that they were entitled to 19½c. per cent. increase on their base rate instead of a day basis and consequently many believed that they were being victimized by the companies out of increases to which they were justly entitled."

Neither the Canadian Western Fuel Co. nor its employees are parties to the arrangement made last year between the Island operators and the mines committees of the various districts for the adjustment of wages by the Cost of Living Commission based on the fluctuations in the cost of living prices. For this reason, together with the fact that the company's rates in many instances are higher than those paid in other localities, the Canadian company does not think it should be penalized by paying the increases awarded by the commission until the rates being paid by other companies are on a par with its own.

Assurance has been received by Mr. Bulger from the Canadian Western Fuel Co. that any increase in wages by other companies in excess of its own will be met promptly.

PENNSYLVANIA

Anthracite

Plymouth—An explosion of a pocket of gas in No. 1 colliery of the Delaware & Hudson Co. on Aug. 29, instantly killed Joseph Dobre, 51 years old; Edward Flynn, John Marshko and Alexander Materka were seriously burned.

Driftton—After improvements now under way are completed, the Sandy Run colliery, of M. S. Kemmerer & Co., near here, will resume operations. The plant has been idle since Nov. 1918, and men suspended are being reinstated.

Hazleton—Production at the Hazleton Shaft colliery of the Lehigh Valley Coal Co. has been curtailed on account of a squeeze, which has developed in the workings of this mine.

Eight hundred persons attended the Annual first-aid and mine-rescue contests of the Wentz allied companies at Hazle Park recently. Maryd, Midvalley, Hazle Brook, Upper Lehigh and Raven Run, had teams (outside and inside), and in addition, two breaker-boy teams, took part. Maryd No. 1 team won first prize and \$50 in gold; Maryd No. 2 won second prize and \$10 in gold; Midvalley was third. All teams showed fine training and were warmly commended by the examining doctors.

Harrisburg—It is stated that the Workers' Insurance Fund of Pennsylvania has assets of over \$3,000,000 and a surplus of \$1,800,000. William J. Roney, of Philadelphia, is the manager of the fund. It is announced that Albert L. Allen, the assistant manager, has resigned to take effect on Sept. 15, to go into the insurance business. There have been reports of friction between the manager and his assistant, and one of the points of contention has been the abolishment of the differential in favor of the state fund. This proposition is now before Commissioner Thomas R. Donaldson. It is understood that experts consider that it would be bad policy to abolish this differential. Most of the coal companies of the commonwealth are said to have placed their insurance with the state fund.

Bituminous

Greensburg—Recently fire, which is believed to be of incendiary origin, damaged the plant of the Derry Coal Co., located a short distance west of here. Local

people are owners of the plant, George Mowry being one of the principal stockholders.

Blossburg—The Bloss Vein Coal Co., recently incorporated with a capital of \$235,000, has acquired about 1200 acres of coal lands in Tioga County, near here, and is planning for the construction of a plant. The principal office will be at Geneva, N. Y., and a branch office will be located at Blossburg, Penn. G. M. B. Hawley is president, and H. L. Coleman treasurer. Mr. Coleman was formerly general manager of the Empire Gas and Electric Company.

Washington—The Washington Gas Coal Co. has awarded the contract for sinking a shaft at this place to the R. G. Johnson Co., of Pittsburgh, Penn.; the work is to begin at once and is expected to be completed in six months. The shaft will be 280 ft. deep and is to be timber lined. When completed, this mine will give the city a modern colliery within the borough limits. As noted on page 176 in the July 24, 1919, issue of *Coal Age*, this plant will deliver coal direct from mine to consumer by means of trucks; there will be no railroad haulage of coal from the plant.

Indiana—Through a deal just consummated, Vernon O. Taylor, formerly an operator of the Toby Valley field, disposed of his coal holdings at Idamar (also in Indiana County) to the Empire Coal Mining Co., of Philadelphia. The purchase price was not announced, and the Philadelphia interests assume control at once. The operation, which is known as the Dixon Mine No. 1, of the Idamar Coal Co., was purchased by Mr. Taylor three years ago; at the time of purchase the property was in a general state of disrepair but it was soon placed in shape for operation and at present is shipping at the rate of 125,000 tons a year. With the transfer of the Idamar mine, Mr. Taylor has disposed of all of his coal operations in Indiana County. His only coal plant at present is the mines at Valler in Jefferson County.

WEST VIRGINIA

Big Chimney—New equipment has been installed at the plant of the Davenport Coal Co. operating on the Coal and Coke Ry., at this place in Kanawha County. The company has begun the production of 2- and 4-in. lump from the Winifrede seam. M. H. Blandford is manager.

Morgantown—A party of Cumberland men, headed by Howard Cross, is said to have purchased the plant and holdings of the Knob Coal Co., at Beechwood, Monongalia County, W. Va., on the Morgantown & Wheeling R.R., near here. Mr. Cross is president of the Knob Coal Co., his latest acquisition. He is general manager of the Carroll Cross Coal Co., Emoryville, W. Va.; vice president of the Elk Garden Big Vein Coal Co.; general manager of the Emory Run Coal Company, in Mineral County, W. Va.; general manager of the Hartman Run Coal Co., near Morgantown, and president of the Ino Coal Co., Morgantown.

Charleston—A large area of smokeless coal will become accessible for development with the building by the Chesapeake & Ohio R. R. of 16 miles of branch line into the coal regions of Nicholas and Greenbrier counties starting from Roncverte. The coal lands referred to are in the region of which Rainelle is the center.

Assignment has been made of those engaged in West Virginia University Mining Extension work as follows: Prof. R. Z. Virgin, in the Fairmont district; H. E. Gray, to the Elkins district; J. A. Graft, to the Winding Gulf district, at Beckley; C. K. Brown, to the Pan Handle section, with headquarters at Wellsburg.

The New River Coal Operators' Association held a meeting here recently when general industrial conditions were brought up; the association gave some time to the discussion of the new wage scale recently agreed upon by scale committees representing the operators and the miners. Most of the companies operating in the New River field have ratified in writing the new contract. The discussion, therefore, had to do with a request from mine workers officials for further conferences in connection with the new wage contract. The operators did not seem to favor any further wage conference.

OHIO

Columbus—Formal complaint has been made by W. D. McKinney, secretary of the Southern Ohio Coal Exchange, through Senator Pomerene against the Railroad

Administration because of lack of cars. Mr. McKinney claims that the mines in the southern Ohio fields are losing more than 50,000 tons weekly because of car shortage. The largest percentage of loss in the field is along the Toledo & Ohio Central, Zanesville & Western and Kanawha & Michigan roads, which have been uncommonly short of equipment. It is estimated that the weekly loss of wages to the miners is in excess of \$75,000.

Officials—The Lorain Coal and Dock Co., of Columbus, which concern operates five large mines in the eastern Ohio field, with a daily capacity of 7500 tons, report that between July 21 and Aug. 21 there was a shortage of 1733 cars which cut the production about 86,000 tons. The same thing is true of other eastern Ohio operators.

The Sunday Creek Coal Co. has the same story to tell as well as the Maynard Coal Co., the Hisylvania Coal Co., and others which have headquarters in Columbus.

INDIANA

Brazil—The Crawford Coal Co., of this city is sinking a new mine in the block coal field northwest of here, which will be ready for operation about Nov. 1, 1919. Work will be given to 150 miners.

Vincennes—The Oliphant-Johnson Coal Co. mine, located near Bruceville, Knox County, broke its record a few days ago for hoisting coal in eight hours when 3115 tons were brought to the surface. This is said to be the third largest mine in Indiana, the leader being the plant of the American Coal Mining Co., at Bicknell, also in Knox County.

Terre Haute—Richard Lieber, director of the Indiana Conservation Commission, is looking into the right of the state to claim coal under the Wabash River in southern Indiana coal fields. A division of the commission has estimated that at least 9,000,000 tons of coal lie under the river. Some of the coal may have been taken by coal companies and the state may mine a portion of it for the state institutions. If the state has a right to the coal then companies that have taken coal from under the river may be required to reimburse the state treasury; such action was recently taken in the case of an Indianapolis gravel company which had taken gravel from the White River. Eli Stansburg, attorney-general of Indiana, has pointed out that at places where the Wabash River is navigable, the state has the right to the coal; on the other hand, if the river is not navigable, the adjacent property owners have the right to the mineral. The question of whether the river is navigable is still unsettled by the courts.

ILLINOIS

Litchfield—Fire was recently discovered in the "Kortkamp" mine near here, and the workings have now been sealed in an effort to smother the fire. The miners working at this plant went on strike recently in sympathy with the insurgent striking miners of the Belleville and Springfield districts.

Athens—The old No. 2 mine, at this place (in Menard County, north of Sangamon County), which was abandoned seven years ago, is to be reopened. The water is being pumped out and Joseph Hands, the manager, announces that coal will be hoisted in a short time. The coal rights underlying a considerable adjoining acreage have been purchased. When the mine was abandoned it was on fire but it later burned out. Athens has one other mine, that of the Athens Mining Company.

Herrin—The U. S. Reduction and Atomizing Co. is rushing the completion of its factory for the treatment of the slack coal from the mines around here. The company plans to spend over \$100,000 in the erection of the plant which will give employment to several hundred men and provide a source of income from a product of the mines which was formerly difficult of disposal. The new plant will somewhat resemble a grain elevator, being three stories high at one end, to house the large hopper where the pulverized or atomized carbon will be stored. The remainder of the building will be one story in height; here will be located the machinery for the pulverizing of coal. The main building will be 40 x 120 ft. with a boiler house 40 x 40 feet.

Pana—Fire destroyed the surface plant of the Springside mine, owned by the Smith-Lohr Coal Mining Co., on Aug. 30. The loss is placed at \$300,000. A hot box in the mechanism of the tipple is said to have set the framework ablaze. The power

house explosion, caused the flames to spread rapidly, imperiling the 300 men at work 700 ft. below in the mine. The miners escaped through an opening into the Penwell mine, but not until after a battle with smoke and gas in which the younger and stronger men assisted the older ones. The tipple, coal washer, engine and boiler houses, storage house, powder house and trackage were destroyed. The mine recently was equipped with new machinery. The property was partly covered by insurance. The company announces that reconstruction work will start soon.

ALABAMA

Birmingham.—The federal grand jury empanelled for the regular term of court in this district has entered upon the investigation of the alleged combine of coal operators of Alabama for maintaining prices, and is hearing a large number of witnesses daily. Congressman Huddleston, of this district, at whose instigation the investigation is being undertaken, was subpoenaed for Sept. 3 to offer testimony, but failed to appear, but it is understood he will be present at a later date. Witnesses have been summoned from among operators, retailers, sales agents, jobbers, miners, and the general public, and much statistical data on cost and profits has been submitted. Coal men are confident of full vindication of all charges.

TEXAS

El Paso.—A municipal coal yard and cooperative buying of fuel was proposed by the Central Labor Union of this place, Texas, as a means for reducing the cost of living to the laboring men.

Thorndale.—The opening of a new coal field fifteen miles southeast of here in Milam County, Texas, is reported by W. C. Phillips. A branch road has been built from the main line of the International & Great Northern Ry. to the fields so that shipping of the fuel will begin shortly.

Rusk.—The iron furnaces here of the Texas Steel Co. are idle, owing to the fact that shipments of coke from the company's coke ovens at Howe, Okla., are being held up by the litigation between the Railroad Administration and the steel company, according to L. P. Featherstone, president of the company. Colonel Featherstone said that the suit filed by his company was still pending and that no relief in the matter of rates complained of had been granted. It is said that the only obstacle to the success of the Texas Steel Co. is the inability to get fuel from the Oklahoma coke ovens on account of excessive interstate rates. Rusk is in Cherokee County in the eastern part of the state.

UTAH

Price.—The mines in Carbon County have recently been inspected by the State Board of Equalization and Assessment in order to obtain a correct idea of the value of the various properties before assessing the corporations. "Knowledge which the board obtained," said Secretary William Bailey, "was in a measure technical, but it was valuable. All such matters have to be taken into consideration in the assessment of coal mines, and now that we have had an ocular demonstration we shall be able to handle the problem better than ever before."

The largest and commercially most important coal field of Utah is that of the Great Uinta basin; its coal beds underlie large portions of Carbon County and counties to the north and east of it. By far the most important field lies in Carbon County from which 85 to 90 per cent. of the state's production is mined. The coal is mostly a high grade bituminous. Much of the mining here is done under heavy cover—in few localities less than 1000 feet.

OKLAHOMA

Oklahoma City.—Inefficiency in the Federal Railroad Administration is blamed by D. B. Withers, of the McAlester Fuel Co., for the lack of coal cars which is holding back coal production in the Oklahoma and Texas coal fields. Failure to keep rolling stock in repair and to build sufficient cars is resulting now in shortage. Mr. Withers said, which has curtailed working time at the mines to at least one-half of what it should be. The mines so far this summer have been working only part time and the winter rush is just starting. The shortage of cars is expected to aggravate a situation already acute insofar as the supply of domestic coal is concerned.

Foreign News

Brussels, Belgium.—The total Belgian output of coal during July amounted to very nearly 87 per cent. of the average monthly production during 1913. In the Mons and Central districts the coal output in July reached practically the pre-war output. In the Charleroi, the output amounted to 85 per cent. and in the Liege district 77 per cent.

Edmonton, Alberta.—O. S. Finnie, inspecting engineer of the Mining Lands branch of the Canadian Department of the Interior, who has been on an exploring expedition, in the district west of Edmonton, reports the occurrence of 12 or more seams of high-grade bituminous coal of great thickness at the junction of the Smoky and Muskeg rivers north of the Canadian National Ry. He considers it also possible that anthracite coal may exist in this neighborhood in large quantities.

Sydney, N. S.—Three of the vessels of the Dominion Steel Corporation, taken over by the British Admiralty for war purposes have been released. They are the "Wabana," "Kamouraska" and "Lord Strathcona" having an aggregate tonnage of 26,000 tons. They are again being used in the St. Lawrence coal carrying trade. Two other ships with a combined tonnage of 22,000 tons are yet to be released and will shortly be available for coal shipments. While the company is rather late in getting into the Montreal coal market this season, it is believed that a fair amount of business will be done before the close of navigation and that the volume of next year's trade will be not far from normal.

Personals

L. S. Bovee has temporarily assumed control of the interests of the Pittsburgh & Erie Coal Co.

Edward Soppitt, president of the Erie Coal Mining Co., is on his way to Europe for an extended vacation.

George Watkin Evans, of Seattle, Wash., returned recently from a professional visit to the Behring River coal field of Alaska.

George E. Steele, of Brownsville, Penn., who recently returned from overseas service as corporal of engineers, has resumed his position as engineer for the Hector Coal and Coke Co., and engineer and assistant general manager for the Snowdon Coke Company.

Edward Brewer, inspector in the Eighth West Virginia mining district, with headquarters at Charleston, has resigned to become manager of the operations of the Wet Branch Coal Co., at Dry Branch, in the Kanawha field. Mr. Brewer has been connected with the state Department of Mines for the last two years.

George H. Ashley has been selected as the state geologist of Pennsylvania. He has been connected with the work of the U. S. Geological Survey in the East and is an authority on coal. Mr. Ashley has done considerable work in Pennsylvania and other coal producing states. He will be the chief of the new bureau created by a recent act of assembly.

C. H. Constantine, who has been superintendent at the Coalbrook colliery of the Delaware & Hudson Co. for the last few years, is to be transferred to Vandling. **W. H. Davison**, superintendent at the Powderly colliery of the D. & H. Co. is to take Mr. Constantine's place. **Richard Beer**, present superintendent at the Vandling, is to be transferred to the Powderly colliery.

Howard J. Thomas has been appointed superintendent of mines for the Sloss-Sheffield Steel and Iron Co., filling the vacancy caused by the resignation of J. E. Strong, who left the service of the company Aug. 1. Mr. Thomas has been assistant general superintendent of mines for several years, and, while a young man, he has been connected with mining interests in an executive capacity for some time.

M. F. Peltier, president and general manager of the Monarch Coal Mining Co., of Monarch, Wyo., moved his office to Chicago, Ill., on Sept. 1. Mr. Peltier has assumed the duties of a vice president of the Peabody Coal Co., of Chicago, but will still retain his connection and position with the Monarch company. **R. F. Fitch**, at present engineer and superintendent, will be in charge of all operations at the Monarch mine. Mr. Fitch recently increased his popularity with the men at the mine by

his proficiency in baseball; in 31 games in which he played on the local team, his batting average was .450 and fielding average was 1000.

Obituary

Robert W. Caldwell, of Clearfield, Penn., and **James F. Stott** of Philipsburg, Penn., coal operators—met their death recently in an old coal mine at Pine Run, Clearfield County, Penn. The former had interested Mr. Stott in the property and they were examining the mine, accompanied by a chauffeur. They had not penetrated more than 50 ft. into the mine when they encountered "white damp" which caused them to fall to the ground. The chauffeur, who was nearest the outside, managed to escape; he was not able to bring help in time to rescue the men alive.

Industrial News

Indiana, Penn.—The Clearfield Bituminous Coal Corporation offices will be moved from Clearfield to Indiana about Sept. 15.

Buffalo, N. Y.—The Lawsonham coal mine at its namesake town in Clarion Co., Penn., has been sold to capitalists at St. Mary's, Penn.; it will be controlled by members of the Elk Fire Brick Co. there—price about \$100,000.

Jellico, Tenn.—The Pioneer Jellico Coal Co. is having plans prepared looking to the extension of its present operations; a total of about 1890 acres is to be developed. The company recently increased its capital from \$25,000 to \$75,000, to provide for the proposed expansion.

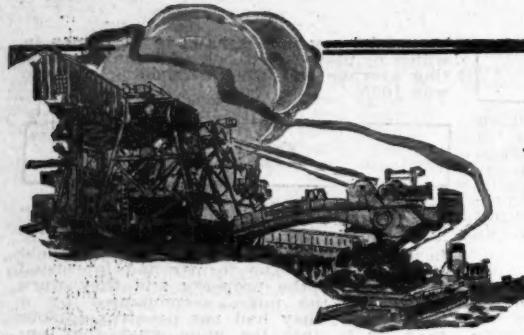
Davy, W. Va.—George Wolfe, Davy; Forest Early, Mullens; and R. F. Wysong, Princeton, are perfecting plans for the organization of a new company to be capitalized at \$150,000. It is proposed to develop approximately 2100 acres of coal properties in the Davy section.

Charleston, W. Va.—A deal is reported in which over \$300,000 changed hands. The property sold was 2,039 acres of coal lands on the Norfolk & Western R.R., to the Camp Creek Coal Co. Its seam of 6½ to 8 ft. of clean coal is 10 ft. high above the railroad. The following are the officers of the company: L. A. Tinder, president; J. Walter Webb and Reed Bigley, vice presidents; L. C. Massey, treasurer; and L. W. Hamilton, secretary. The corporation will spend \$200,000 in developing these coal lands, and the work will begin at once.

Cleveland, Ohio.—The Lakewood Engineering Co., with headquarters here, has issued the first number of its Lakewood Aerial Bulletin (the 7 o'clock final) with a circulation—"guaranteed highest in the world." These bulletins were dropped by aviators in a flight from Dayton to Cleveland who are engaged to regularly distribute such literature from an airplane. In the technical field, this is a novel method of exploiting equipment and the Manufacturers' Publicity Bureau considers that it is destined to be a big part of the advertising world in the days to come.

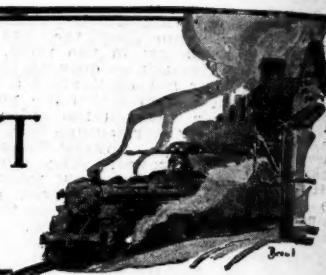
Princeton, W. Va.—A company is being organized here with a capital of \$150,000 for the purpose of acquiring and developing about 2100 acres of coal near the plant of the Superior-Pocahontas Coal Co., at Davy. The tract is said to be underlaid by the Davy-Sewell seam. The company plans to start construction work in the near future and to begin the mining and shipping of coal early in the year. Among those active in organizing the new company are George Wolfe, superintendent of the Winding Gulf Collieries Co., and general manager of the Superior-Pocahontas Coal Co., at Davy; Forest Early, of Mullens and A. F. Wysong, of Princeton.

Milwaukee, Wis.—The Richardson-Phenix Co., of this place, announces that L. E. Strothman has become the vice president and general manager of this firm in which he has acquired a financial interest. Mr. Strothman was formerly manager of the Steam Turbine and Pumping Engine Departments of the Allis-Chalmers Manufacturing Co.; he had been connected with this concern since 1902, and prior to that with the Files & Stowell Co. and the Nordberg Manufacturing Co. Mr. Strothman is a member of several engineering societies; in 1916 he was appointed associate member of the Naval Consulting Board. In 1918 he was made a member of the Committee on Power Test Codes and elected chairman of the Sub-Committee of Displacement Pum Test.



MARKET DEPARTMENT

EDITED BY ALEX MOSS



Weekly Review

Large Volume of Soft Coal Moving from the Mines—Buying Is Slow—May Have to Offer Inducements to Move Coal—Anthracite Situation Offers No Cause for Worry—Hard Coal Operators to Sue United States Government

THE output of bituminous coal is at the present time well beyond expectations. In spite of all talk of short car supply and inadequate labor, the volume of coal moving from the mining regions reaches a total that would be considered high in normal times. However, there is little reduction in prices of the good grades of fuel. These are quickly absorbed as soon as they reach the market.

It is evident that the production of soft coal has caught up with the demand, and that until real cold weather sets in the market will be easier. It is hard to forecast conditions, for labor troubles are liable to occur at any time.

In the Pocahontas and New River districts, as well as in the Pittsburgh and Westmoreland fields, there is now consistent mining and a steady flow of coal. Mines in Illinois are still running on short time because of labor troubles. So many producers have purposely re-

frained from making contracts for season delivery that it would occasion no great surprise to hear of inducements being made to move coal in the near future, quite possibly before October.

Export and bunker demand is strong, though the lack of bottoms precludes heavier shipments to foreign ports. Many vessels sailing from the United States carry with them sufficient fuel for the round trip, while vessels reaching here from foreign countries complain of the lack of coal across the seas, some of the officers saying that they had been held up for several days pending the arrival of fuel.

As with the soft coal industry, unless labor troubles interfere unduly with mining all fears of a shortage of anthracite this winter may be set aside. Of interest this week is the news that the strike of the Reading fleet of tugs, which had been in effect since the latter part of July, has been settled. The re-

sumption of movement means a great deal to points along the Atlantic Coast which depend upon this fleet for the towing of their coal supply.

Interesting, too, is the announcement that the "independent" anthracite operators of Pennsylvania (as distinguished from the so-called "railroad coal companies") are preparing to institute a test suit against the Government to determine whether the United States is not liable for a loss in profits suffered by them because of Fuel Administration control. It will be alleged that the company bringing the suit operated its mine during the entire régime of Dr. Garfield, and that, under the restriction of prices maintained by the Fuel Administrator, the prices it was permitted to charge for its product were so low that it barely got back the cost of mining and preparing, thereby denying it the "just and reasonable profit" to which it is entitled by law.

WEEKLY COAL PRODUCTION

A slight decrease marked the production of bituminous coal during the week ended Aug. 30, the output being estimated at 10,197,000 net tons as compared with 10,662,000 tons during the preceding week. The week's performance has been exceeded but two other times during the year, in January and early July.

The current weekly production is still, however, 2,500,000 tons below that of a year ago. The total output during the first eight months of 1919 is thus 96,000,000 tons, or nearly 25 per cent. less than during the same period of 1918.

Anthracite production during the week ended Aug. 30 was the highest attained this year. The output is estimated at 1,946,000 tons, a figure 4.2 per cent. above the week of Aug. 23 but 14 per cent. below that of the corresponding week last year. In spite of quickening demand, production since the beginning of the coal year is still 6,200,000 tons, or 14 per cent. less than during the corresponding period of 1918, but 9 per cent. above 1916.

The marked improvement in production which occurred during the week of Aug. 23 is shown by the operators' reports to be due to a partial cessation of the labor disturbances in Illinois and to the recovery of the railroads from the shopmen's strikes. Aside from slight losses of time ascribed to labor shortage in Ohio, Pennsylvania and the Southwest, labor conditions were satisfactory during the week, except in Illinois. In that state losses due to labor amounted to one-fifth of the full-time capacity. This, however, was a marked improvement over the preceding week when Illinois mines lost a third of their full working time because of labor troubles.

The steady quickening of the demand for coal is shown in Indiana, where losses of output are attributed to lack of market. Customers have been in the house in much larger numbers. Collections are very satisfactory.

Alabama, the Southwest, and the Far West, does a dull market now seriously retard production.

Car shortage became less acute as the railroads partially recovered from the effects of the shopmen's strikes of early August. Southern Ohio and western Kentucky were the only districts which failed to report relief. In spite of the improvement, however, the mines of the country as a whole lost a sixth of their full working time through railway disability. Shortage of cars remained the principal factor limiting production.

The gradual increase in the production of beehive coke, which has been apparent since the depression of last May, continues. The output during the week ended Aug. 30—the greatest since Mar. 15—is estimated at 417,609 net tons, or 0.7 per cent. higher than that of the preceding week.

In comparison with the corresponding week of last 1918, however, the production is small. The country enters the ninth month of 1918 37 per cent. behind the production of last year.

For the two week period ended Aug. 24 dumpings of bituminous coal at lower Lake Erie ports were less than half those of a year ago—1,129,489 tons as compared with 2,307,697 tons during the corresponding period of 1918. In consequence, total dumpings since Jan. 1 are now 220,000 tons, or 1.4 per cent. behind last year.

BUSINESS OPINIONS

Marshall Field & Co.—Current wholesale distribution of dry goods was well in excess of the same week a year ago. Orders from road salesmen, both for immediate and future delivery, showed a considerable increase over the same period of 1918. Customers have been in the house in much larger numbers. Collections are very satisfactory.

Dry Goods Economist—In the primary

markets trade has slowed down, although in retail stores throughout the country business has continued to move at a rapid gait. There are good authorities who are impressed with the possibility of reaction in the country's business as a whole, but such a change in general conditions they do not regard as being near at hand.

Atlantic Seaboard

BOSTON

Market continues inactive, but with little recession in prices. Output keeps up beyond expectation. Some shippers are even "padding" orders. Low volatiles still have the call. Tonnage at piers readily absorbed. Hampton Roads prices firm. Sales confined to export and bunker trade. Reading barge movement resumed. More cheerful outlook for domestic sizes.

Bituminous—In spite of many predictions the market for steam coal in this territory is nothing short of dull. There is an utter lack of snap to current demand. Inquiries are only scattering and for very small tonnages, so little interest is there on the part of buyers. It has been a season of quiet buying, with very few spurts, and as a result the great majority of steam-users find themselves with ample stocks for months ahead. They are again showing discrimination between coals, and in more cases than few they are complaining of the quality of shipments that they were eager to buy a month or more ago. A reaction has set in we are obliged to admit. Notwithstanding all the tales of short car-supply, lack of men, etc., the volume of coal moving forward keeps up to what in normal times would be considered a high figure. At the same time, there is very little easing up of prices. A few of the low volatiles

that advanced rapidly a few weeks ago to a range of \$3.30@\$3.50 have now settled back on a \$3.10@\$3.25 basis, although there are specialties that still command the higher price level. The medium grades from Clearfield and Cambria have dropped to less than \$3, and most of the high volatiles have followed suit. A demand from other directions is still maintaining prices, for if the market were left to current buying in New England the price reaction would probably be pronounced.

In all the districts the output is well beyond expectation. More and more men are available for the mines, and although there is uneasiness here and there over car-supply the trouble from that factor seems now pretty well discounted. In the Pocahontas and New River districts, as well as in Pittsburgh and Westmoreland fields, there is now consistent mining and a steady flow of coal. So many producers have purposely refrained from taking contracts for season delivery that it would not be at all surprising to see inducements made for moving coal, quite possibly before September is over. There are scores of operations, especially those where the coal is not favorably regarded, that have orders in hand only for a few weeks, at best, and from present indications an effort will have to be made to place them before long.

In the current market the outstanding feature is the strength of buying at the Philadelphia and New York piers. Apparently there are several shippers who have commitments enough ahead to keep them picking up coal to load foreign cargoes, and as a result prices at the loading ports continue reasonably firm. In most cases receipts at the piers are readily absorbed, although the poorer grades sell only with difficulty. Coastwise business is very light and now that freights on Long Island Sound and to Boston have advanced because of the prevailing bad weather it is assumed there will be even less of this coal placed than was the case in August.

At Hampton Roads there is almost no softening in prices. The export and bunker demand is still strong and the volume of coal taken by the Government on the spring contract basis makes operators all the more anxious to secure remunerative prices offshore. For shipment in this direction there are practically no sales, receipts here being almost wholly confined to contract deliveries. While the tonnage received is light and the stocks in the hands of rehandling factors are small, there are no reports anywhere of anxiety on this account. There were some indications when the shopmen's walkout was threatening, but barring interruptions to transportation there is now a feeling of easiness over the situation.

Current quotations of bituminous at wholesale range about as follows:

Cambrials and Clearfields Somersets		
F. o. b. mines, net tons...	\$2.60@\$3.00	\$3.00@\$3.50
F. o. b. Philadelphia, gross tons.....	4.79@\$5.25	5.20@\$5.70
F. o. b. New York, gross tons.....	5.10@\$5.60	5.50@\$6.00
Alongside Boston (water coal), gross tons.....	6.85@\$7.85	7.10@\$7.85

Georges Creek is quoted at \$3.70 per net ton, f. o. b. mines.

Pocahontas and New River are quoted at \$6.00 @6.50 per gross ton f. o. b. Norfolk and Newport News, Va., in response to export demand. There continue practically no sales for coastwise shipment.

Anthracite.—The big news in the hard coal trade this week is the settlement of the strike on Reading tugs. The fleet which has been tied up since the latter part of July resumed movement on Sept. 3 and by the end of the week all nine tugs were bound east with tugs. This will be of great assistance all along the coast where there are retailers dependent upon this fleet for their supply. The situation has been especially serious to up-river points like Bangor and Augusta, Maine, where a season's supply ought to be accumulated by Dec. 1. At such points the dealers now have almost no coal on hand and things were rapidly approaching a crisis.

Tonnage figures that are published are as misleading in anthracite as in bituminous. All the comparisons are with 1918, and during that season a very large tonnage, somewhat in excess of a round million gross tons, was received of buckwheat, silt and culm, all of which was classified as "anthracite" and continues to be held up to the public as "anthracite," such as they use in their homes. The fact is that this market will not today begin to absorb its proportion of pea coal, let alone the three sizes of buckwheat and the river culm and other products reclaimed last year during a time when there was real apprehension.

NEW YORK

Dealers feel that danger of shortage of coal has passed. Demand for egg and stove slackens and market is easier. Line trade wants chestnut. Demand from New England and Canada remains heavy. Pea coal moves easily. Call for bituminous slows down and coal accumulates at piers. Prices remain firm. Big demand for export and bunker coals.

Anthracite.—The continued delivery of a fair tonnage of the domestic coals has had a wholesome effect upon the local market, and unless the unexpected occurs the danger of anything resembling a shortage of those sizes here is small. While some retail dealers have orders remaining unfilled that they received in April last, they have delivered so many orders not usually received until later in the year that they feel themselves secure.

The feeling in wholesale circles is much easier. The pressure is not so noticeable, and the anxiety at one time so manifest that there would be a lack of coal is not so apparent. Conditions are much improved, and although the report of dumpings at the railroad docks does not show as many cars dumped, the trade was well taken care of.

While egg and stove sizes are short here among the line trade the call for chestnut is strong and some shippers complain of its scarcity. Chestnut and pea coals have picked up in the tidewater market and the surplus tonnage is not heavy.

The call of dealers in the New England States and in Canada continues strong, but the situation is much improved. Canadian consumers, as did many here, became frightened early in the year and placed their winter orders far ahead of the usual time, with the result that retail dealers began their rush of deliveries earlier than usual. Nothing serious is looked for in the Canadian situation unless it is an exceptionally cold winter bringing with it transportation difficulties. Buyers in Canada appear so well fortified that they are now reported to be holding off rather than meet the premiums said to be asked by some shippers of independent coals.

In this market dealers are not placing orders as freely as heretofore. They have a better feeling, and some independent coals which frequently brought the offer of a premium are now being turned down unless they can be secured at near the regular company schedule.

Some pea coal is being moved here in conjunction with shipments of egg and stove, but this is not as frequent as a few weeks ago.

Buckwheat is moving the best in the list of the steam coals. While the demand is good here, salesmen find inland dealers willing to take larger shipments. Rice and barley are in larger supply than buckwheat.

During the week ended Sept. 5 there were 4886 cars of anthracite dumped at the local railroad piers as compared with 6668 cars the week previous, a decrease of 1582 cars, due in most part to Sunday and Labor Day.

Quotations for company, white ash coals, per gross tons, at the mines and f. o. b. New York tidewater lower ports, follows:

	Mine	Tidewater
Broken.....	\$5.95	\$7.80
Egg.....	6.35	8.20
Stove.....	6.60	8.45
Chestnut.....	6.70	8.55
Pea.....	5.30	7.05
Buckwheat.....	3.40	5.15
Rice.....	2.75	4.50
Barley.....	2.25	4.00

Bituminous.—Lack of demand with increased shipments and no orders to meet the tonnage has resulted in the local docks being overrun with coal and the placing of embargoes on many shippers as well as some of the docks. The surprising feature of the situation was the maintaining of prices, some of which for certain grades show an increase over the previous week.

The high-grade coals, which have been hard to get, are again making their appearance but do not remain long as they are quickly absorbed and buyers are willing to pay good prices.

Reports received here from Canada indicate that there is little cause for nervousness over the situation there. With the present stocks on hand and the regular movement of coal the trade there feels there is no reason for any anxiety.

There is a growing demand for coal from New England. Supplies are said to be smaller than is generally realized and a serious shortage would mean considerable to manufacturers.

That there is not a larger supply of coal on the local docks is due to the large num-

ber of vessels leaving this port and the heavy demand for coal for export. The lack of vessels continues to delay heavier shipments of coal to foreign countries. Many vessels sailing from this port carry with them sufficient fuel for the round trip, while vessels coming into the port from foreign countries complain of the lack of fuel across the seas, some of the officers saying they had been held up for several days pending the arrival of coal.

Car supply is said to be improving on the Baltimore & Ohio.

Quotations on pool coals show some changes from last week's figures. Pools 1, 9 and 71 range from \$5.55 to \$6.10 per ton; No. 10, \$5.75 to \$5.85; No. 11, \$5.30 to \$5.40, and No. 18 from \$5 to \$5.15.

Quotations on various grades of coal at the mine for spot delivery range about as follows:

	Spot
South Fork (best).....	\$3.25@\$3.50
Cambria (best).....	3.00@\$3.25
Cambria (ordinary).....	2.70@\$2.90
Clearfield (best).....	3.00@\$3.25
Clearfield (ordinary).....	2.70@\$2.90
Reynoldsburg.....	2.85@\$2.90
Quemahoning.....	3.25@\$3.50
Somerset (medium).....	3.10@\$3.25
Somerset (poor).....	2.65@\$2.75
Western Maryland.....	2.65@\$2.75
Fairmont 1 in.....	3.10@\$3.25
Latrobe.....	2.75@\$2.90
Greensburg.....	2.75@\$3.00
Westmoreland, 1 in.....	3.50@\$3.75
Westmoreland run-of-mine.....	3.20@\$3.35

PHILADELPHIA

Anthracite.—Demand unabated. Consumers anxious for deliveries. Dealers receive new business. Careful as to price quotation. Chestnut stocks going down. Pea demand improving. Stove and egg still short. Individual pea price up. Retail price schedule well maintained, with little cutting. Manufactured coal coming on market. Steam market shows little activity. Some cutting on buckwheat. Bituminous demand good. Some easing off account of tide embargo. Prices firm.

Anthracite.—As was to be expected, the cool spell prevailing last week was only a flurry and more reasonable conditions now obtain. Nevertheless it served to impress upon coal buyers the desirability of providing for their coal supply. The retailers received quite an influx of new business, and most of them in accepting it have exercised much care as to promise of delivery as well as price. While there have been rumors that the large companies might ask more than the previously announced increase, it is not at all certain yet that they will not increase the present winter schedule.

As to supplies in the local yards, the receipts lately have been quite meager and coal has been going out about as fast as it came in. Many dealers who had been storing a fair quantity of chestnut are now finding their piles being rapidly reduced, while other dealers find chestnut about as scarce as any size. Egg and stove are still short, and the latter size will no doubt be in that position for months yet. The dealers still have hopes of receiving sufficient egg to fill the orders they have on their books, although in many instances there will be a reduction in profit on account of accepting this business early in the season when they had every reason to believe they would receive sufficient quantity of this size to fill their orders.

The report is almost general that the high priced coal is usually promptly shipped—that is, coal from the individual shippers—and the dealers say the higher the price the quicker it comes. It is reported that dealers handling a heavy percentage of individual coal are simply adding the extra cost to the price and delivering this coal on new orders. This at times has caused them to be criticized by customers who have had orders in since spring. It would appear that the dealers in order to protect themselves are using the plan of holding all orders taken at a price until such a time as they get company coal to fill them and thus minimize their losses.

Pea coal continues to be the only size that is in plentiful supply and the buying by the consumers appears to be increasing now with the approach of fall. In the meantime the dealers continue to increase their stocks of this size, endeavoring to keep them at a maximum, and at the same time moving out as much as possible.

Considering retail prices it can be said that the general public seems to be convinced that higher prices are likely by the first of the year, and this is a factor in urging them to place orders at this time. With the September price schedules issued by all the operating companies the retailers

have been able to announce their prices, and the standard retail figures run about as follows: Egg, \$11.15; stove, \$11.55; nut, \$11.50; pea, \$9.55. Of course, with the dealers handling independent coal these prices run as much as 50c. more. There are only a few cut price men asking a lower figure than the above list, and usually this is not more than 25c. less. To all of these prices there is an addition of 40c. a ton for hauling.

In the steam grades there is no noticeable activity. Buckwheat is in fair demand and some plants are stocking up heavily on this size. However, the demand is not yet sufficient to take up the entire production, and individual shippers at times find themselves caught with numerous cars of this size that must be moved, which is usually done at prices around \$3.15@3.25 as compared with the company figure of \$3.40. Rice is in fair demand for the time of year, but a heavy tonnage is still going into the company storage yards. To even a greater degree the same is true of barley.

Bituminous—Soft coal has been sort of jumpy lately, and while prices have been fairly well maintained there has at times been a softening tendency in this direction. Much of this has been due to an embargo which was placed against certain coals at tide and for a time pushed a good tonnage on the open market which had to be moved to avoid demurrage. Many consumers took this as an indication of a general weak and were inclined to dicker with shippers as to price, which in some instances became quite favorable to the buyers.

It is believed that it is purely a local condition and will soon right itself. That coal is not actually plentiful is proved by the fact that one of the railroads finding itself quite short of fuel confiscated a number of shipments en route to local consumers. With all the gateways to the east and west now open to receive shipments, it is not at all unlikely that the market will stiffen shortly; in fact signs of this are already in evidence. Due to the holiday the first of the week operators are reporting a short production and are finding it difficult to fill orders promptly, inasmuch as the car supply shows no particular signs of permanent improvement, although the railroad officials are promising that there will soon be ample cars to meet all calls.

The prices per net ton in effect at this time are as follows:

Georges Creek Big Vein.....	\$3.40@3.55
South Fork Miller Vein.....	3.40@3.55
Clearfield (ordinary).....	3.10@3.20
Somerset (ordinary).....	3.00@3.15
Fairmont lump.....	3.25@3.35
Fairmont mine-run.....	3.10@3.20
Fairmont slack.....	2.50@2.65
Fairmont lump (ordinary).....	2.90@3.00
Fairmont mine-run.....	2.70@2.80
Fairmont slack.....	2.50@2.65

BALTIMORE

Export trade the greatest in history of port, and jam over two piers such that embargo was ordered. Rush of coals from mines does not bring down prices. Hard coal prices to remain same for September as for August.

Bituminous—The export coal movement from Baltimore, covering both gas and low-volatile coals, the latter a new feature of the foreign trading from this point, in the past three months has been the heaviest in the history of the trade. The period of June, July and August covers the term wherein the over-growing demand for export coal has figured, and during the three months there was loaded here on foreign coal carriers a total of 748,328 tons. August was the greatest month, and next to the largest single month in the history of the business here, a total of 275,177 tons having been dumped into foreign carriers.

The rush of coal to tide from the mines under the vastly improved car supply has exceeded both the vessel supply and the ability of the pier terminals to handle, and during the past week the Curtis Bay pier trackage became so jammed that it was necessary to use the Western Maryland Ry. trackage at Port Covington for storage, although the Railroad Administration has refused to reopen either that pier, or the Locust Point pier of the Baltimore & Ohio, on the ground of economy. The jam at the Canton pier of the Pennsylvania was also great at times last week, and there has been a period of intermittent embargoes ranging from covering of particular pools to complete shutdown of shipments to tide.

More ships have been promised the port, and there is a feeling of confidence that the present congestion is due for early lifting. This is reflected in the price of coals, which holds firm at relatively high figures in the face of the improved movement. Better grade coals are the more

readily absorbed on the strictly domestic market, and there is more discrimination in buying just now. The best grade steam coals are still firm at from \$3.50 to \$3.75 to the trade, mine basis, with intermediate grades ranging all the way from \$2.75 to \$3.25. The less desirable coals are offering at from \$2.40 to \$2.50. The gas coal market too is firm, low sulphur three-quarter demanding \$3.50; medium sulphur three-quarter \$2.75 and run-of-mine \$2.40.

Anthracite—While the discussion of prices of hard coal at retail has been rather warm here at times, and many coal men claim that the margin of profit as being made here at present, under a large part of the incoming coal-carrying premiums, is entirely too low, it seems probable that no advance will take place here for September. At present many dealers are paying premiums of from 75c. to \$1 on probably two-thirds of the coal they receive, and the claim is made that there must be a retail jump Oct. 1 or thereabout, when the real fall demand begins, unless there is a decided improvement in the proportion of company coal being received. Much complaint is heard of the scarcity of stove coal, known in this locality as No. 3, and this covers both white ash and Sunbury. Nut coal, too, is short in some yards. There seems to be a much more liberal supply of pea coal running this September as compared with the same period of last year.

Lake Markets

PITTSBURGH

Production stationary. Car shortage pronounced. Mr. Hines Criticized. Some prices a shade higher.

Coal production in the Pittsburgh district has been practically at a stationary rate since about July 1, there having been a steady increase for several months up to that date. Prior to that time orders represented the limiting factor in production. For several weeks past car supply has been clearly the limiting factor, and the car shortage has grown worse in the past week or two. Coal men who attended the hearings of the Frelinghuysen committee of the Senate declare that the daily press reports did not correctly state the position of Director General Hines when the reports intimated he did not admit that there has been a coal car shortage, as the coal men heard Mr. Hines admit the shortage. Pittsburgh district coal operators resent Mr. Hines disposition at the hearing to refer so frequently to coal prices. They maintain, first, that coal prices have nothing to do with the duty of the railroads to furnish cars for moving coal, and second, that the Pittsburgh district operators at any rate are not charging unreasonable prices for coal. The market has advanced only slightly in the past few weeks.

On some divisions in the district car shortages run as high as 50 per cent. A general estimate is that production is at between 55 and 60 per cent. of potential capacity of mines and that the output attained is about 75 per cent. of the output that the men on the payrolls could produce if they worked full time, so that such output would be between 75 and 80 per cent. of potential capacity. The direct car shortage therefore is about 25 per cent.

The Pittsburgh district is now shipping about 300 cars a day in the lake trade, about 15,000 tons or about one-sixth of the production. Shipments are much lighter than earlier in the season, and are going to dwindle gradually in the next few weeks, ceasing almost entirely quite a time before the season of navigation closes. While many consumers apparently have counted upon the ending of the lake shipping season to release so much coal for line trade as to make the situation much easier, coal producers assert that the elimination of lake shipments will hardly be felt, and point to the fact that the decrease that has occurred to date has been attended by a greater scarcity of coal.

The divergence in price of mine-run between gas and steam has disappeared almost entirely, and prepared sizes of gas coal are at only a very moderate advance over mine run. Steam coal is quotable a shade higher than a week ago. Both steam and gas slack have advanced rather sharply. Counting out occasional low and high-priced sales involving but small tonnages, the general run of the market, covering the great bulk of the transactions, is quotable as follows: Steam coal: Slack, \$2.10@2.30; mine-run, \$2.50@2.60; Gas: Slack, \$2.20@2.40; mine-run, \$2.50@2.70; prepared sizes, \$2.60@2.90, per net ton at mine, Pittsburgh district.

BUFFALO

Bituminous trade steady, but not very brisk. Not able to meet Pittsburgh prices. Cars grow scarce. No change in anthracite.

Bituminous—The old difficulty continues. Jobbers find that mine prices are more than they can pay. At the same time they know that this market, as well as Canada and the section eastward, are not paying these high prices, for when they send out circulars quoting these prices they get no orders. The plan has been to get an order before the coal is bought and then find an operator who will sell on that basis.

The fall rush for coal is not in sight, and the idea that there will be one has about been given up here. Not till things become more quiet and industries move normally will there be need of large amounts of coal. Still, if the trade will go on as at present, making slow improvement without any setbacks, there will be no complaint. It has been so much poorer in the past few years than now that anything tolerably fair looks good to the trade.

It becomes harder and harder to quote bituminous prices. Such figures as are given out here by the most reliable jobbers would be repudiated by most mine owners. The jobbers know that, and yet they are able to get what coal they need at prices that form the basis of their quotations and are satisfied. The situation shows that there is coal enough to meet conditions, even if prices are various.

Quotations, as given out by leading members of the trade, are \$4.55 for Allegheny Valley sizes, \$4.80 for Pittsburgh and No. 8 lump, \$4.65 for same three-quarter, \$4.20 for mine run, \$4.10 for slack, \$4.80 for smokeless, \$5.70 for Pennsylvania smithing, \$6.75 for domestic size coke, and \$5.75 for breeze, all per net ton, f.o.b. Buffalo.

Anthracite—The trade is still waiting for more coal. The lake trade suffers on account of the handlers' strike in Duluth and Superior, the others from a general slow mining, which the operators seem unable to improve. Locally the supply has been better of late, but the demand is as far ahead. This condition promises to last indefinitely. Buffalo is near the mines and ought to feel easy on that account, but the increasing car shortage makes everybody anxious.

In the lake trade the movement is good. While the ports of Duluth and Superior are closed by the strike, the fleet is sent to other ports, so that when the strike is over (it is now in its second month), the bulk of the shipments can be directed there. For the week the loadings were 111,300 net tons, of which 44,700 tons cleared for Chicago, 18,600 tons for Sheboygan, 15,300 tons for Port Arthur, 12,100 tons for Fort William, 10,800 tons for Milwaukee, 7000 tons for Ashland and 2800 tons for Racine.

Rates are 60c. to Chicago, 55c. to Racine, 47c. to Milwaukee, 42c. to Fort William, Port Arthur, Ashland, Sheboygan.

CLEVELAND

Southern and eastern Ohio mines, now operating at 60 per cent., are not quite able to meet the demands of this district, despite the fact lake shipments are practically nil again. General business conditions are improving rapidly, and the market as a whole looks quite good.

Bituminous—Hysteria over the high cost of commodities appears to have subsided. Opinion is well-nigh unanimous that a strike will not be called in the iron and steel industry—an event that would automatically cut coal consumption in the Cleveland district 65 per cent. In every branch of industry the continued report is of improvement. As a result, coal operators believe market conditions are fast becoming stabilized, and that normal consumption along with present prices will rule for some little time.

Consumers are taking all of the bituminous coal they can get. Operators are showing more of a willingness to contract for fairly long periods—as the coal industry goes—and in this attitude consumers agree. It seems to be taken for granted by both operators and consumers that present levels will be maintained through the winter, with the possible exception of domestic coal. Considerable fuel is reported on track in the various railroad yards outside of Cleveland. The carriers are putting in more than the usual amount of railroad fuel for this season of the year.

Southern and eastern Ohio mine operators say the car situation has been slightly improved as a result of protests. The improvement, however, is slight indeed, most operators declare, and few of the mines are being operated more than 60 per cent. Allen mine workers still are flowing out,

and the movement is believed to be weakening the firm attitude of the workers on their proposed wage and hour demands. For the time being, dissatisfaction is less apparent in the Ohio fields.

Prices in the Cleveland market are unchanged, so far as bituminous is concerned, but all along the line dealers and operators report nothing but firmness. Advances are looked for in the domestic bituminous grades, but the steam coal and prepared size grades will remain stationary for a time, it is believed.

Anthracite and Pocahontas—Shortage of both continues the outstanding feature of the market, with dealers making personal trips to the mines in order to expedite and augment shipments. Receipts still are only a fraction of the demand. Anthracite prices have been marked up again by most dealers, those holding back now planning to catch up with the procession in a week or ten days.

Lake Trade—While practically all iron ore dock workers at the head of the Great Lakes have returned to work following their strike, the coal forces still are about half out. As a result, little more than railroad fuel is being shipped. Lake Erie docks now are dumping between 1600 and 2000 cars of bituminous coal a day, against 2500 and up to 3400 cars daily for this time of the year. At Duluth and Superior in August, for example, receipts of bituminous coal amounted to 520,500 tons, compared with 1,442,000 tons in August, 1918. Anthracite handled at these ports in August totaled 62,100 tons, against 218,600 tons in August a year ago. The outlook for an early settlement of the upper lake dock difficulty is not promising. Where lake dock difficulty is not promising. Where early in the season it was thought that light shipments in the fall would suffice to meet demand, the movement has been cut down more than anticipated, and as soon as all the docks are again working, the lake trade will take all the bituminous it can get.

DETROIT

Demand for bituminous coal is pronounced more sluggish in Detroit than in other leading markets.

Bituminous—While reports coming to local jobbers and wholesalers indicate a steady improvement in demand for bituminous coal in most of the other large markets, as well as in export lines, Detroit buyers are said to be taking far less stock than the business outlook and present condition of the market would seem to justify. Jobbers seem at a loss to explain the attitude of the backward buyers, though the theory is still advanced that the limitations on current business are prompted by the expectation of the consumers that they will be able to get their coal at a lower cost, if they hold back long enough.

While there is only a moderately large movement of bituminous into the local market and the greater part of the business is handled on the basis of shipment direct from producer to consumer, there is a certain amount of free coal on tracks, which possibly is creating among some of the buyers a misleading conception of market conditions. Half a dozen brokers, soliciting the same group of buyers and each offering the same consignment of coal, it is explained, may have led the buyers to imagine the market is flooded with stock pressing for sale, encouraging the belief that they can obtain as much coal as they want, whenever they decide to buy.

West Virginia 4-in. lump is quoted at the equivalent of about \$4 a net ton at the mines, while 2-in. lump is offered at \$3.75, with run-of-mine \$3 and slack ranging from \$2.25 to \$2.50. Domestic lump from the Hocking district is held at \$3.25 to \$3.50, with egg \$3, mine-run \$2.25 to \$2.35, and slack \$1.90 to \$2. With the exception of Jackson Hill, which is about \$1 higher than Hocking, the product of other Ohio mines is held at about the same price as Hocking.

Shortage of car supply apparently is extending from West Virginia to the Ohio territory, as complaints of deficiency in the latter district are increasing.

Anthracite—Low temperatures during the last few days have stimulated inquiry from household consumers for anthracite. Most of the retailers are said to have only a limited supply and there is considerable complaint about the producers' lack of promptness in shipment, as well as concerning transportation delays between the mines and destination.

Lake Trade—Because of the long continued idleness of coal-unloading docks at the American head of the lakes, due to the strike of coal dock workers, it is reported more than 60 lake freighters are holding coal cargoes at ports either on Lake Superior or Lake Erie. Several unloading

docks are resuming work this week with new forces, whose inexperience renders progress slow. Some of the freighters have lost nearly four weeks due to inability to discharge cargoes, while a few have been diverted to Lake Michigan ports for unloading. The curtailment of shipments during the dock strike is likely to be reflected in a shortage of supply in the Northwest this winter, according to some of the shippers. The movement from mines to loading ports already is greatly reduced. Labor troubles at the mines and deficient car supply are likely to interpose further checks on shipments.

COLUMBUS

Domestic sizes are showing unusual strength in the Ohio market. There is also a good demand for both mine-run and screenings, and the entire market is strong. A slight improvement in the car supply has stimulated production in all fields.

The feature of the Ohio coal trade is the demand for prepared lump, which is gradually increasing under steady buying on the part of retailers. Dealers' stocks are not large, and with consumers placing more orders retailers are anxious to be prepared. As a result they are placing orders, mostly for immediate shipment. Prices have advanced materially with \$3.25 to \$3.50 being paid for Hocking 3 and 4-in. lump. Pomeroy lump is about 25c. higher. There is also a strong demand for West Virginia splints, which are now selling around \$4.50 at the mines. Pocahontas is so scarce that it has ceased to be a factor in the domestic trade. Producers and distributors are forced to accept orders conditionally as to date of shipment. Retail prices have advanced under better buying. Hocking lump is selling between \$6 and \$6.25, while West Virginia grades are up to about \$6.75 to \$7.

Steam demand is also strong, although the pressure is not shown as in the domestic department. Screenings are fairly strong, selling in the neighborhood of \$1.75 to \$2. Some of the larger users are trying to accumulate reserves and are buying liberally. Sufficient stocks are available to take care of current demand. Iron and steel plants are using a fairly good tonnage of steam sizes, while general manufacturers are also in the market. The railroad demand is stronger and a larger tonnage is being taken on existing contracts.

There is a better car supply, especially in the Hocking Valley, which is reflected in the output. It is reported that about 55 per cent. car supply was afforded to operators on the Hocking Valley Ry. lines. Other roads are not so well supplied. In the eastern Ohio field the production is cut to less than 50 per cent. Cambridge and Massillon fields show up with 50 per cent. output. Pomeroy Bend is producing about 50 per cent.

Lake trade is progressing better with a fairly good tonnage moving toward the Northwest. Docks of the upper lake ports are somewhat congested as the interior movement is not rapid. Lake prices are strong at former levels. Indications point to a continuation of the lake trade right up to the date of closing navigation.

CINCINNATI

Good demand for domestic coal. Prices likely to increase in future. Car shortage curtails production.

Wholesale coal dealers report a fairly good demand, mainly from domestic consumers, but the usual rush in business at this time of the year is not in evidence now. There has been no change in prices in the past month, but the opinion prevails among dealers that there is likely to be an increase within a short time, for the reason that mine laborers continue to want increases in wages, causing operating expenses to advance steadily.

Reports to operators and dealers from coal sections in Ohio are to the effect that soft coal will be selling at \$4 a ton at the mines by Oct. 1 unless there is an improvement in the car situation. The car situation in Ohio is said to be worse at this time than several weeks ago. The output is away behind schedule. The miners in Ohio are not working more than 40 per cent. of their normal time. And they have a 48-hour week. Operators say if they could get cars five days each week there would be no danger of a shortage of soft coal or the high prices that seem almost sure to come. The car situation soon may have a direct bearing on the labor situation.

Ohio produced last year about 30,000,000 tons of soft coal. Today only a little more than 22,000,000 have been produced, according to figures given out. And conditions instead of growing better are growing

steadily worse as far as the car supply is concerned.

Officials of the Southern Ohio Coal Exchange say that the shortage of cars at 200 mines in Ohio in August would have carried 70,000 tons of coal.

LOUISVILLE

Operations continue on two-day basis. Demand keen but production short and stocks low. Industrial consumers buying much more freely.

Operations in the Kentucky fields continue on a two-day basis generally, a few mines managing to secure a few extra cars now and then. The average is on the two-day basis. Mines which have installed additional equipment, and have a larger production, are having trouble in getting increased production recognized in allotment of car supply. Industrial as well as domestic stocks are low. Domestic consumers have stocked a fair volume of coal, but retail yards are almost empty. Industrial concerns are discovering that there is a general car shortage, and are beginning to get anxious about their coal supply. They are unable, however, to secure much prompt delivery coal, as many concerns are sold up and refusing business.

A goodly amount of West Virginia block coal has been coming on the market from car pool territory, where cars have been more plentiful than in the Kentucky district, and is helping materially. There is also a better supply of river coal this year, statistics for the first six months of the year showing that 30,378 tons of coal were received by the Ohio waterway as compared with 23,500 tons last year. No coal was received in January or February of 1918, when the river was in bad shape.

There has been a slump in rail receipts this year as compared with last year for the first six months, when 2270 cars of 104,651 tons were received, as compared with 2897 cars last year of 121,531 tons.

BIRMINGHAM

Demand fair for high-grade steam and equal to production at present. Consumers holding off on buying medium and low grades with the apparent hope of obtaining the better grades later. Labor Day and car supply cause heavy loss in output.

Consumers are buying the best grades of steam coal fairly well—in fact they are taking the limit of production at this time and there is a scarcity in the supply, but little or no improvement is shown in orders booked for medium and lower grades of steam fuel. The indications at present point to a stiffened demand for steam coal, which will force consumers to fall back on the supply of medium and inferior quality product, as there will not be a sufficient supply of high-grade coal available to meet any appreciable increase in requirements.

The rail lines in this district, with the exception of two, are reported to be very short on coal supply, not receiving sufficient tonnage on contracts to take care of current needs. One line has already bought some coal in the spot market and will likely be followed by others in the near future.

There is practically no domestic coal to be had through the next two months, the market being very strong. Retailers have not as yet accumulated much stock, deliveries to consumers about evening up with receipts.

Shortage of labor on Labor Day and the scarcity of equipment at the mines has caused a heavy loss in production this week. Mines are receiving only about 60 per cent. car supply, which is not sufficient to take care of the business in hand. Figures compiled by the Alabama Coal Operators' Association from weekly reports received from the mines indicate a decrease of about 3,000,000 tons in the output of coal to date as compared with 1918. While the loss is probably not so large, due to failure of some operators to make their reports regularly, as was required under Federal control in 1918, there is a large deficiency.

Coke

CONNELLSVILLE

Market slightly stiffer. Box cars extremely scarce.

Coke for spot or prompt shipment is firmer than a week ago in both furnace and foundry grades. Minimum of quotations a week ago still holds but maximum quotations are higher and there is less coke moving at minimum figures. There has been a very moderate amount of buying

of furnace coke for spot and prompt shipment, and quite a fair volume of buying of foundry grades. The stiffness of the market is due to offerings being scant rather than there being heavy buying pressure.

Supplies of open-top cars are practically satisfactory, but supplies of box cars, for shipping foundry coke, are extremely meager. For several years there has been more or less scarcity, resulting in the old rule being broken, that foundry coke must be shipped in box cars. A distinct scarcity began about two months ago and has so increased in the past fortnight that shipments in box cars are estimated to amount to only about 25 per cent. of the total shipments of foundry coke. The acuteness of the shortage is due to the grain movement, which has taken so many box cars that even the steel mills in the district that must ship their product in box cars are short and some have piled considerable tonnages of steel products, particularly sheets and tin plates. Minimum quotations on foundry coke can be done only on open top car shipments, as even indifferent brands bring decidedly higher prices if they must be shipped in box cars.

There are no contract negotiations to speak of. Quite a number of furnaces normally tributary to the Connellsville coke region remain idle, but they are showing scarcely any disposition to get into blast, presumably because the pig iron market, while firm, is not active enough to enable a furnace to sell a round tonnage upon which to get into blast. The spot and prompt market is now quotable at \$4.75 @ 5 for furnace and at \$5.50 @ 6.50 for foundry, per net ton at ovens. Until a week or ten days ago \$6.25 was the higher quotation on foundry coke, but two or three operators have advanced that price to \$6.50 and have effected some sales at the higher figure. It is only occasionally that any foundry coke can be had at \$5.50.

The "Courier" reports production in the Connellsville and the Lower Connellsville region in the week ended Aug. 30 at 247,395 tons, an increase of 1955 tons.

Middle Western

MILWAUKEE

Anthracite gets a final lift of 10c. per ton. Coke advanced 25c. per ton. Stove and egg anthracite scarce. All other kinds of coal in good supply.

All grades of anthracite except buckwheat were marked up 10c. per ton on Sept. 1. Soft coal remains unchanged. Coke was raised 25c. per ton, or to \$12 for the larger sizes and \$10.75 for pea. No charge is made for carrying in coke. An official of the leading dock company is authority for the statement that there will be no further advance in anthracite. For years it has been the rule to maintain a difference of 50c. per ton between the April price and the price after Sept. 1.

There is a good supply of coal on the docks and a fair run of cargoes keep arriving. With over three months of navigation ahead, there is no reason why there should not be an ample supply of coal on the docks at Milwaukee when the season closes. Stove and nut sizes of anthracite continue scarce.

The demand for coal for domestic use increases as the summer draws to a close. With the month of August completed, the receipts since the opening of navigation to Sept. 1 aggregate 532,836 tons of anthracite and 1,958,729 tons of soft coal, a gain of 142,577 tons of the former and a loss of 194,330 tons for the latter as compared

with receipts during the same period last year.

Prices of coal in Milwaukee are about as follows:

	Per Ton
Anthracite:	
Chestnut	\$12.70
Stove	12.60
Egg	12.40
Pea	11.20
Buckwheat	9.75
Bituminous (Domestic):	
West Virginia splint, screened	7.75
Hi-Heat	7.75
Hocking lump, egg and nut	7.50
Pittsburgh, screened	7.50
Pocahontas, mine-run	8.50
Pocahontas, lump, egg and nut	10.75
Cheerful Chunks (Kentucky, for grates)	9.25
Smithing	8.50
Cannel (Kentucky)	11.75

Steam Coal:

Youghiogheny, screened	6.75
Youghiogheny, pile run	6.50
Pittsburgh, screened	5.50
Pittsburgh, pile run	6.50
Pittsburgh, screenings	6.25
Hocking lump, screened	5.50
Hocking lump, pile run	6.50
Hocking lump, screenings	6.25
West Virginia splint, screened	6.75
West Virginia, pile run	6.50
West Virginia, screenings	5.50
Kentucky lump, screened	7.50
Kentucky lump, pile run	7.25
Kentucky lump, screenings	5.50
Pocahontas, mine-run	7.50
*Pocahontas, screenings	7.50
Smithing	7.50
*Kanawha Gas, mine run	7.50

* Sold up and out of the market.

An extra charge of 75c. per ton for coal carried in.

An extra charge of 25c. per ton for less than ton lots.

ST. LOUIS

Little coal on the market on account of strikes. City demand easy for domestic and steam not heavy. Country demand is good, however, with little to offer. War time prices prevailing. Car shortage worst on record and movement is slow and unsatisfactory. Labor troubles continue.

The local situation is a day-to-day proposition. With the majority of the mines in the Standard and Mt. Olive field on strike, there is little coal to offer. In the Standard field a few of the mines are operating at about one-eighth to one-fourth of their usual force, and the railroads are taking all of this coal. Some mines are idle on account of the strike, and others are idle because their locals have not been reorganized. At many mines some of the more peaceable miners are afraid to go to work on account of the threatened trouble.

Prices in the Standard district are around \$2.50 for 2-in. lump, \$2.75 for 6-in. lump, and screening at about \$2. When the coal moves into the country prices range about 15c. higher.

The railroads are having a hard time getting their contract supply of fuel. In the face of all the idle mines, the Illinois Central R.R. is unable to keep the few that are working supplied with cars.

The miners have a happy faculty of reporting for work on the days that there are no cars at the mines and the railroads have a peculiar way of taking away empty cars during the night after the mine has blown for work for the next day, so as a rule there is no work.

There is little chance that conditions in this field will improve any until after the conference in Cleveland on the 9th. As a

matter of fact, several miners prophesied this some time ago and they are surely making good on it.

In the Mt. Olive district some of the mines are working and others are idle on account of the strikes. Working time is fairly good, everything considered. In this field the operators have kept their prices on St. Louis shipments down to \$2.40 on domestic sizes. Shipments out in the country are from \$2.85 to \$3, as well as to Chicago and the north. There is considerable dissatisfaction as a result of the Mt. Olive operators keeping their prices the same as before the labor troubles when the price of Standard is much higher and so little to be obtained, but this attitude is satisfactory to the dealers and to the consuming public in St. Louis.

In the Carterville field of Williamson and Franklin County the situation is quiet. The car supply is so bad that some days the entire field has less than 25 per cent. of the equipment needed to run it. At other places the mines are working but two days a week, and the Missouri Pacific R.R. is taking all of the coal, leaving nothing for commercial shipments. The short-sighted, incompetent ruling that prevented the railroads from keeping more than ten days' supply of coal on hand in the summer months is what has caused this appalling coal shortage right now. In the summer months when cars were plentiful and the mines were idle the railroads would not stock up in coal. Now they are taking everything they can lay their hands on.

The Illinois Central is in the worst shape for car supply. The movement is not exceptionally good on this road either. The Iron Mt. R.R. however, is the worst offender for taking all the coal that the mine produces. The C. B. & Q. and C. & E. L. are rendering the best service in the field. None of the mines, however, are working anywhere near full time, and many of them are unable to accept orders at all for future shipments, being sold up for over three months.

The railroad tonnage from this field is heavier now than it has been for many months. Similar conditions prevail in the Duquoin field. The prices in all these fields advanced on the 1st and are practically uniform for both association and independent operations.

In St. Louis proper there is practically no anthracite moving in and no smokeless. Arkansas coal is also out of the market. The domestic demand for coke is fairly good and a big tonnage is moving out to the northwest.

Domestic buying is unusually slow on everything. Several dealers have lots of orders ahead and indications are that the buying that is going to be placed before cold weather sets in is about finished. When cold weather comes the poor element will, of course, come in for Standard coal, but until then the market ought to remain quiet in a domestic way.

The industrial situation is also quiet and the demand for steam is easy as a rule, with here and there an exception. Country demand is exceptionally good for domestic coal of any and all kinds, and the steam demand shows considerable improvement in the last week or two.

Some of the dealers advanced their prices 25c. a ton on Sept. 1 on account of the hauling rates going up 25c. a ton. With the increase in the cost to the dealer of 20c. a ton on high grade, there has been no provision made for an increase in retail prices yet, but this will likely come about the 15th.

The wholesale prices on the Carterville district coals are \$3.25 for the domestic sizes. Screenings are \$2.10 to \$2.30 and mine run \$2.40 to \$2.75 per net ton f.o.b. mine.

Coal and Coke Securities

NEW YORK STOCK EXCHANGE CLOSING QUOTATIONS, SEPT. 8, 1919

STOCKS	Ticker Abvn.	Bid	Asked	BONDS	Bid	Asked
American Coal Co., of Allegheny	(ACL)	45	134	Cahaba Coal, 1st Gtd. 6s, 1922	96	...
Burns Brothers, Com.	(BB)	133	134	Clearfield Bituminous Coal, 1st 4s, Ser. A, 1940	75	...
Burns Brothers, Pfd.	(BB)	103	115	Colorado Fuel & Iron, Gen. 5s, 1943	89	92
Central Coal & Coke, Com.	(CK)	55	...	Colorado Indus, 1st Mtg. & Col. Tr. 5s, 1934	77	79
Central Coal & Coke, pfd.	(CK)	63	...	Consolidation Coal of Maryland, 1st Ref. 5s, 1950	83	88
Colorado Fuel & Iron, Com.	(CF)	44	45	Jefferson & Clearfield Coal & Iron, See Mort. 5s, 1926	96	...
Colorado Fuel & Iron, Pfd.	(CF)	125	...	Lehigh Valley Coal, Gtd. Int. Red. to 4%, 1913	99	100
Consolidation Coal of Maryland	(CGM)	75	...	Lehigh Valley Coal, 1st Gtd. 5s, 1933	75	...
Elli Horn Coal, Com.	(EH)	35	36	Pleasant Valley Coal, 1st S. F., 5s, 1928	80	...
Elk Horn Coal, Pfd.	(EH)	40	47	Pocahontas Coal & Coke, Joint 4s, 1941	80	83
Island Creek Coal, Com.	(ICR)	39	...	Pocahontas Con. Collieries, 1st S. F. 5s, 1957	83	85
Island Creek Coal, Pfd.	(ICR)	75	...	Roch. & Pitts. Coal & Ir. Helvetia Pur. Money 5s, 1946	90	...
Jefferson & Clearfield Coal & Iron, Pfd.	(JF)	63	...	St. L. Rocky Mnt. & Pac. Stamped 5s, 1955	79	...
New Central Coal of West Va.	(NCC)	5	...	Tenn. Coal, Iron & R.R., Gen. 5s, 1951	87	89
Pittsburgh Coal, Com.	(PC)	62	62	Utah Fuel, 1st Sinking Fund 5s, 1931	87	...
Pittsburgh Coal, Pfd.	(PC)	95	96	Victor Fuel, 1st Mtg. Sinking Fund 5s, 1953	55	70
Pond Creek Coal	(PD)	20	20	Virginia Iron, Coal & Coke 1st 5s, 1949	84	85
Virginia Iron, Coal & Coke	(VK)	60	64			

CURRENT PRICES—MATERIALS & SUPPLIES

IRON AND STEEL

PIG IRON—Quotations compiled by the Matthew Addy Company as per Department of Commerce Committee Schedule.

	Current	One Month Ago
CINCINNATI		
No. 2 Southern	\$30.35	\$30.35
Northern Basic	27.55	27.55
Southern Ohio No. 2	28.55	28.25
NEW YORK, Tidewater delivery		
2X Virginia (silicon 2.25 to 2.75)	32.40	31.90
Southern No. 2 (silicon 2.25 to 2.75)	35.20	33.95
BIRMINGHAM	27.75	28.00
PHILADELPHIA		
Eastern Pa.	30.65*	30.65
Virginia No. 2	32.10-34.10	32.10-34.10
Basic	30.90*	30.90
Grey Forge	29.90*	29.90
CHICAGO		
No. 2 Foundry Local	26.75	26.75
No. 2 Foundry Southern	28.00	28.00
PITTSBURGH, including freight charge from the Valley		
No. 2 Foundry Valley	28.15	28.15
Basic	27.15	27.15
Bessemer	29.35	29.35

*F. o. b. furnace. † Delivered.

STRUCTURAL MATERIAL—The following are the base prices, f.o.b. mill, Pittsburgh, together with the quotations per 100 lb. from warehouses at the places named:

Mill	New York				
	Pittsburgh	Current	One Year Ago	St. Louis	Chicago
Beams, 3 to 15 in.	\$2.45	\$3.47	\$4.24	\$3.54	\$3.47
Channels, 3 to 15 in.	2.45	3.47	4.24	3.54	3.47
Angles, 3 to 6 in., 4 in. thick.	2.45	3.47	4.24	3.54	3.47
Tees, 3 in. and larger	2.45	3.52	4.24	3.54	3.47
Plates	2.66	3.67	4.49	3.54	3.67

BAR IRON—Prices in cents per pound at cities named are as follows:

Pittsburgh	Cincinnati	St. Louis	Denver	Birmingham
2.75	3.25	3.44	4.30	3.25

NAILS—Prices per keg from warehouse in cities named:

Mill	St. Louis	Denver	Chicago	Birmingham	San Francisco	Dallas	
Wire	\$3.25	\$3.90	\$4.90	\$3.90	\$4.50	\$5.25	\$5.00
Cut	4.925	5.40	5.61	5.50	...	6.65	6.40

TRACK SUPPLIES—The following prices are base per 100 lb. f.o.b. Pittsburgh for carload lots, together with the warehouse prices at the places named:

Pittsburgh	Chicago	St. Louis	San Francisco	Birmingham	Denver	
Standard railroad spikes $\frac{1}{8}$ -in. and larger	\$3.35	\$4.27	\$4.44	\$5.65	\$4.50	\$5.05
Track bolts	4.35	5.17	Prem.	6.65	6.00	6.05
Standard section angle bars	3.00	4.22	Prem.	4.60	...	6.50

COLD FINISHED STEEL—Warehouse prices are as follows:

New York	Chicago	Cleveland	St. Louis
Round shafting or screw stock, per 100 lb. base	\$5.00	\$4.90	\$4.75
Flats, squares and hexagons, per 100 lb. base	5.50	5.40	5.50

HORSE AND MULE SHOES—Warehouse prices per 100 lb. in cities named:

Mill	Cincinnati	Chicago	St. Louis	Denver	Birmingham	
Straight	\$5.75	\$7.50	\$6.50	\$7.00	\$8.15	\$7.00
Assorted	5.85	7.50	6.50-7.00	7.25	8.40	7.25
Cincinnati—Horseshoe nails sell for \$4.50 to \$5 per 25-lb. box.						

CAST-IRON PIPE—The following are prices per net ton for carload lots:

New York	One Month Ago	One Year Ago	St. Louis	San Francisco	Dallas	
4 in.	\$57.30	\$55.30	\$64.75	\$58.80	\$52.00	\$27.55
6 in. and over	54.30	52.30	61.75	55.80	49.00	74.55

Gas pipe and 16-ft. lengths are \$1 per ton extra.

STEEL RAILS—The following quotations are per ton f.o.b. Pittsburgh and Chicago for carload or larger lots. For less than carload lots 5c. per 100 lb. is charged extra:

Pittsburgh	One Current	One Year Ago	Chicago	One Current	One Year Ago
Standard Bessemer rails	\$45.00	\$55.00	\$45.00	\$65.00	
Standard openhearth rails	47.00	57.00	47.00	67.00	
Light rails, 8 to 10 lb.	2.58*	3.13*	2.83*	3.13*	
Light rails, 12 to 14 lb.	2.54*	3.09*	2.79*	3.09*	
Light rails, 25 to 45 lb.	2.45*	3.00*	2.70*	3.00*	

* Per 100 lb.

OLD MATERIAL—The prices following are per gross ton paid to dealers and producers in New York. In Chicago and St. Louis the quotations are per ton and cover delivery at the buyer's works, including freight transfer charges:

	New York	Chicago	St. Louis
No. 1 railroad wrought	\$23.50	\$21.00	\$22.00
Stove plate	17.50	22.00	22.50
No. 1 machinery cast	25.00	24.00	23.50
Machine shop turnings	11.00	10.00	13.00
Cast borings	11.00	12.50	13.00
Railroad malleable cast	16.00	20.75	20.50

COAL BIT STEEL—Warehouse price per pound is as follows:

New York	Cincinnati	Birmingham	St. Louis	Denver
\$0.12	\$0.16	\$0.18	\$0.13	\$0.18

DRILL STEEL—Warehouse price per pound:

	New York	St. Louis	Birmingham	Denver
Solid	14c.	13c.	15c.	15c.
Hollow	18c.	22c.

PIPE—The following discounts are for carload lots f.o.b. Pittsburgh; basing card of Jan. 1, 1919 for steel pipe and for iron pipe:

BUTT WELD					
Inches	Steel Black	Galvanized	Inches	Iron Black	Galvanized
$\frac{1}{4}$ and $\frac{1}{2}$	50%	24%	$\frac{1}{2}$ to $\frac{1}{4}$	39%	23%
to 3	54%	40%			

LAP WELD					
	BUTT WELD, EXTRA STRONG PLAIN ENDS				
2	50%	35%	2	32%	18%
$\frac{1}{2}$ to 6	53%	41%	$\frac{1}{2}$ to 4	34%	21%

BUTT WELD, EXTRA STRONG PLAIN ENDS					
1, $\frac{1}{2}$ and $\frac{1}{4}$	46%	29%	$\frac{1}{2}$ to $\frac{1}{4}$	39%	24%
2, $\frac{1}{2}$ to 4	51%	39%	2	35%	23%
3, $\frac{1}{2}$ to 12	55%	43%	$\frac{1}{2}$ to 6	34%	22%

Stocks discounts in cities named are as follows:

New York		Cleveland		Chicago	
Black	Galvanized	Black	Galvanized	Black	Galvanized
1 to 3 in. steel butt welded	47%	31%	43%	34%	57%
3 to 12 in. steel lap welded	42%	27%	45%	30%	53%

Malleable fittings, Class B and C, from New York stock sell at list + 12%. Cast iron, standard sizes, 10% off.

WIRE ROPE—Discounts from list price on regular grades of bright and galvanized are as follows:

New York	St. Louis
Galvanized iron rigging	+12%
Galvanized cast steel rigging	7%
Bright plain rigging	35%
Bright cast steel	22%
Bright iron and iron tiller	5%

STEEL SHEETS—The following are the prices in cents per pound from jobbers' warehouse at the cities named:

Pittsburgh, Mill in Carloads	Current	Month Ago	New York, One Year Ago	Cleveland, One Year Ago	Chicago, One Year Ago	Cleveland, Current	Chicago, Current
*No. 28 black	4.35	5.50	5.62	6.495	5.27	5.62	5.62
*No. 26 black	4.25	5.40	5.52	6.395	5.17	5.52	5.52
*Nos. 22 and 24 black	4.20	5.35	5.47	6.345	5.12	5.42	5.42
Nos. 18 and 20 black	4.15	5.30	5.42	6.295	5.07	5.42	5.42
No. 16 black annealed	3.75	4.77	4.77	5.695	4.67	4.77	4.77
No. 14 black annealed	3.65	4.67	4.67	5.595	4.57	4.67	4.67
No. 10 black annealed	3.55	4.57	4.57	5.495	4.47	4.57	4.57
*No. 28 galvanized	5.70	6.75	7.42	7.745	6.62	6.97	6.97
*No. 26 galvanized	5.40	6.45	7.12	7.445	6.32	6.67	6.67
*No. 24 galvanized	5.25	6.30	6.97	7.295	6.17	6.52	6.52

* For painted corrugated sheets add 30c. per 100 lb. for 25 to 28 gages; 25c. for 19 to 24 gages; for galvanized corrugated sheets add 15c., all gages.

SHOP SUPPLIES

NUTS—From warehouse at the places named, on fair size orders, the following amount is deducted from list:

Semi-finished nuts sell at the following discounts from list price:

	Current	One	Year Ago
New York	50-10%	50%	
Chicago	50%	50%	
Cleveland	60-10%	50%	
St. Louis	45%	...	

MACHINE BOLTS—Warehouse discounts in the following cities:

	New York	Cleveland	Chicago	St. Louis
1 by 4 in. and smaller	50%	50%	50-5%	50-5%
Larger and longer up to 1 in. by 30 in.	40%	40%	40-5%	40-5%

WASHERS—From warehouses at the places named the following amount is deducted from list price:

	New York	Cleveland	Chicago	St. Louis	
For wrought-iron washers:					
New York	\$1.25	Cleveland	\$3.75	Chicago	\$3.00
For cast-iron washers the base price per 100 lb. is as follows:					
New York	\$6.00	Cleveland	\$3.75	Chicago	\$4.25

RIVETS—The following quotations are allowed for fair sized orders from warehouse:

	New York	Cleveland	Chicago
Steel 1/8 and smaller	50-10%	55%	55%
Tinned	50-10%	55%	55%

Boiler, 1/4, 1 in. diameter by 2 in. to 5 in. sell as follows per 100 lb.:

New York. \$4.72 base Cleveland. \$4.00 Chicago. \$4.87 Pittsburgh. \$4.65

Structural, same sizes:

New York. \$4.82 Cleveland. \$4.10 Chicago. \$4.97 Pittsburgh. \$4.75

CONSTRUCTION MATERIALS**LINSEED OIL**—These prices are per gallon:

	New York		Cleveland		Chicago	
Current	One	Current	One	Current	One	
Year Ago		Year Ago		Year Ago		
Raw, 5-bbl. lots	\$2.15	\$1.90	\$2.50	\$2.10	\$2.37	\$2.05
5-gal. cans	2.30	2.30	2.75	2.25	2.57	2.25

WHITE AND RED LEAD—Base price.

	Red		White			
Current	1 Year Ago	Current	1 Year Ago	Current	1 Year Ago	
Dry	In Oil	Dry	In Oil	Dry	In Oil	
100-lb. keg	13.00	14.50	14.00	14.50	13.00	14.00
25 and 50-lb. kegs	13.25	14.75	14.25	12.75	13.25	14.25
12½-lb. keg	13.50	15.00	14.50	15.00	13.50	14.50
5-lb. cans	15.00	16.50			15.00	16.00
1-lb. cans	16.00	17.50			16.00	17.00
500 lb. lots less 10% discount.	2000 lb. lots less 10-2½% discount.					

COMMON BRICK—The prices per 1000 in cargo or carload lots are as follows:

	Chicago	Birmingham	Denver (hard red)	St. Louis, salmon	New York
	\$12.00			15.00	

PREPARED ROOFINGS—Standard grade rubbered surface, complete with nails and cement, costs per square as follows in New York, St. Louis, Chicago and San Francisco.

	1-Ply		2-Ply		3-Ply	
C.I.	L.c.l.	C.I.	L.c.l.	C.I.	L.c.l.	
No. 1 grade	\$1.50	\$1.75	\$1.90	\$2.15	\$2.30	\$2.55
No. 2 grade	1.35	1.60	1.70	1.95	2.05	2.30

Asbestos asphalt saturated felt (14 lb. per square) costs \$5.00 per 100 lb.

Slate-surfaced roofing (red and green) in rolls of 108 sq.ft. costs \$2.25 per roll in carload lots and \$2.50 for smaller quantities.

Shingles, red and green slate finish cost \$6.00 per square in carloads, \$6.25 in smaller quantities, in Philadelphia.

ROOFING MATERIAL—Prices per ton f. o. b. New York and Chicago:

	Carload Lots		Less Than		Carload Lots	
N. Y.	Chicago	N. Y.	Chicago	N. Y.	Chicago	
Tar felt (14 lb. per square of 100 sq.ft.)	\$70.00	\$70.00	\$71.00	\$71.00		
Tar pitch (in 400-lb. bbl.)	21.00	18.00	22.00	19.00		
Asphalt pitch (in barrels)	34.00	34.00	37.50	37.50		
Asphalt felt	68.00	68.00	72.50	72.50		

HOLLOW TILE—Price per block in carload lots for hollow building tile:

	4x12x12	8x12x12	12x12x12
St. Paul	\$0.065	\$0.135	\$0.185
St. Louis	.08	.15	
Seattle	.09	.175	.30
Los Angeles*	.082	.154	.236
New Orleans	.165	.22	.325
Pittsburgh	.065	.115	
Chicago	.08	.144	
Denver	.125	.18	.25
Cincinnati	.78	.104	.2092

*F. o. b. factory, 4, 8 and 10 inch.

LUMBER—Price of pine per M in carload lots:

	1-In. Rough	2-In. T. and G.	8 x 8 In. x 20 Ft.
10 In. x 16 Ft.	10 In. x 16 Ft.	10 In. x 16 Ft.	
St. Louis	\$42.00	\$39.00	\$35-36
Birmingham	40.00	48.00	43.00
Denver	43.25	35.00	43.00
Cincinnati	45.00	45.00	45.00

EXPLOSIVES—Price per pound of dynamite in small lots and price per 25-lb. keg for black powder:

	Low Freezing		Gelatin		Black	
	20%	40%	60%	80%	Powder	
New York	\$0.27	\$0.30			\$2.40	
Boston	\$0.22	.24	.26	.31	2.20	
Kansas City	.19	.23	.26	.30	2.25	
New Orleans	.22 (50%)	.22	.24			
Seattle	.14	.18	.21	.315	1.90	
Chicago	.18	.21	.25	.29	2.15	
St. Paul	.19	.23	.26		2.45	
St. Louis	.19	.23	.25	.30	2.40	
Denver	.17	.22	.24	.28	2.25	
Los Angeles	.21	.26	.30		2.75	

COAL AGE

Vol. 16, No. 11

MISCELLANEOUS**GREASES**—Prices are as follows in the following cities in cents per pound for barrel lots:

	Cincinnati	St. Louis	Birmingham	Denver
Cup	7	6.7	8	14
Fiber or sponge	8	13	9	18
Transmission	7	13	7	17
Axle	4	4	3.4	5
Gear	4	7	5	8
Car journal	22 (gal.)	4.7	6	8

BABBITT METAL—Warehouse prices in cents per pound:

	New York		Cleveland		Chicago	
Current	One	Current	One	Current	One	
Year Ago		Year Ago		Year Ago		
Best grade	90.00	125.00	80.00	108.00	75.00	100.00
Commercial	50.00	70.00	18.50	23.00	15.00	24.00

HOSE—Following are prices of various classes of hose:

	Fire	50-Ft. Lengths
Underwriters' 2½-in.		70c. per ft.
Common, 2½-in.		40%
	Air	
1-in. per ft.	First Grade \$0.50	Second Grade \$0.35
	Third Grade \$0.25	
First grade	30%	Second grade 40%
	Third grade 40-10%	

	LEATHER BELTING	Present discounts from list in cities named:
		Medium Grade
St. Louis		40%
Denver		25%
Birmingham		35%
Chicago		35%
Cincinnati		30-2½%
		40-2½%

RAWHIDE LACING—20% for cut; 45c. per sq.ft. for ordinary.**PACKING**—Prices per pound:

	Rubber and duck for low-pressure steam	Asbestos for high-pressure steam	Duck and rubber for piston packing
			\$0.90
Boston			1.50
Duck			1.00
Flax, regular			1.20
Flax, waterproofed			1.60
Compressed asbestos sheet			.90
Wire insertion asbestos sheet			1.10
Rubber sheet			.50
Rubber sheet, wire insertion			.70
Rubber sheet, duck insertion			.50
Rubber sheet, cloth insertion			.30
Asbestos packing, twisted or braided, and graphited, for valve stems and stuffing boxes			1.20
Asbestos wicks, ½ and 1-lb. balls			.85

MANILA ROPE—For rope smaller than 1-in. the price is ½ to 2c. extra; while for quantities amounting to less than 600 ft. there is an extra charge of 1c. The number of feet per pound for the various sizes is as follows: 1-in., 8 ft.; 2-in., 6; 3-in., 4½; 4-in., 3½; 5-in., 3; 6-in., 2½; 7-in., 2; 8-in., 1½; 9-in., 1; 10-in.; 11-in., 1; 12-in., 1; 13-in., 1; 14-in., 1; 15